STIC Search Report
EIC 1700

STIC Database Tracking Number: 162476

TO: Shamim Ahmed **Location: 9A54** **Art Unit : 1765** **August 31, 2005** **Case Serial Number: 10/766639**	**From: Les Henderson** **Location: EIC 1700** **REM 4B28 / 4A30** **Phone: 571-272-2538** **Leslie.henderson@uspto.gov**

Search Notes

Access DB# 162476

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Shamim Ahmed Examiner # : 75030 Date: _____
Art Unit: 1765 Phone Number 30 _____ Serial Number: 10/766,639
Mail Box and Bldg/Room Location: _____ Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Nanostructures and methods of making same

Inventors (please provide full names): Moll, Roitman and Lu

Earliest Priority Filing Date: _____

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable	
Searcher: ZA	NA Sequence (#)		STN	$1553.76
Searcher Phone #:	AA Sequence (#)		Dialog	
Searcher Location:	Structure (#)		Questel/Orbit	
Date Searcher Picked Up:	Bibliographic	✓	Dr.Link	
Date Completed: 8/31/05	Litigation		Lexis/Nexis	
Searcher Prep & Review Time: 30	Fulltext		Sequence Systems	
Clerical Prep Time: 30	Patent Family		WWW/Internet	
Online Time: 300	Other		Other (specify)	

PTO-1590 (8-01)

STIC Search Results Feedback Form

EIC17000

Questions about the scope or the results of the search? Contact ***the EIC searcher or contact:***

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1713*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to EIC1700 REMSEN 4B28

20050164132

Smith, Teresa (ASRC)

From: Unknown@Unknown.com
Sent: Sunday, August 14, 2005 10:12 AM
To: STIC-EIC1700
Subject: Generic form response

ResponseHeader=Commercial Database Search Request

AccessDB#= 162476

LogNumber= _____

Searcher= _____

SearcherPhone= _____

SearcherBranch= _____

MyDate=Sun Aug 14 10:11:41 EDT 2005

submitto=STIC-EIC1700@uspto.gov

Name=Shamim Ahmed

Empno=75030

Phone=571-272-1457

Artunit=1765

Office=REM 9A54

Serialnum=10/766,639

PatClass=216/41

Earliest=01/28/2004

Format1=paper

Searchtopic=Please search for patterning/etching of vector polymer, (listed in claim 6) including payload moiety (semiconductor or metal atom of iron).

Note: Could you please make this ASAP, cause I had this case from other art unit last week and this is due in this week.
Thanks a lot.

Shamim Ahmed
Primary Examiner
AU 1765

Comments=

send=SEND

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=> d his ful

     (FILE 'HOME' ENTERED AT 08:23:24 ON 31 AUG 2005)

     FILE 'HCAPLUS' ENTERED AT 08:23:39 ON 31 AUG 2005
                E US20050164132/PN
L1            1 SEA ABB=ON  PLU=ON  US20050164132/PN
                D ALL
                SEL L1 RN

     FILE 'REGISTRY' ENTERED AT 08:25:41 ON 31 AUG 2005
L2            1 SEA ABB=ON  PLU=ON  1271-51-8/BI
                D SCAN
L3            1 SEA ABB=ON  PLU=ON  1271-51-8/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 08:42:03 ON 31 AUG 2005
L4          290 SEA ABB=ON  PLU=ON  L3
L5              QUE ABB=ON  PLU=ON  POLYMER## OR HOMOPOLYMER## OR
                COPOLYMER## OR TERPOLYMER## OR RESIN? OR GUM?
L6          179 SEA ABB=ON  PLU=ON  VINYL(A)FERROCENE
L7           80 SEA ABB=ON  PLU=ON  L6(A)(POLY OR POLYM? OR L5)
L8          407 SEA ABB=ON  PLU=ON  L4 OR L6 OR L7
                E NANOSTRUCTURE/CT
                E E4+ALL
L9       106884 SEA ABB=ON  PLU=ON  NANOSTRUCT? OR NANOPARTIC? OR
                NANOCRYST? OR NANO(A)(STRUCT? OR PARTIC? OR CRYST?)
L10         149 SEA ABB=ON  PLU=ON  VECTOR(A)POLYM?
L11         121 SEA ABB=ON  PLU=ON  VECTOR(A)L5
L12         180 SEA ABB=ON  PLU=ON  L10 OR L11
L13          14 SEA ABB=ON  PLU=ON  L9 AND L12
                D CAN
                D SCAN
L14           1 SEA ABB=ON  PLU=ON  L13 AND L1
                E MOEITIES/CT
                E MOEITY/CT
L15          38 SEA ABB=ON  PLU=ON  (PAYLOAD? OR PAY(W)LOAD?)(2A)(MOIET?
                OR UNIT? OR GROUP? OR FUNC?)
                D L15 1-10 KWIC
L16           1 SEA ABB=ON  PLU=ON  L15 AND L13
                D SCAN
L17           1 SEA ABB=ON  PLU=ON  L15 AND L9
                D SCAN
L18         783 SEA ABB=ON  PLU=ON  IRON(2A)ACRYL?
L19        1420 SEA ABB=ON  PLU=ON  IRON(2A)?ACRYL?
L20         291 SEA ABB=ON  PLU=ON  L18(A)(POLY OR POLYM? OR L5)
L21         443 SEA ABB=ON  PLU=ON  L19(A)(POLY OR POLYM? OR L5)
L22        7831 SEA ABB=ON  PLU=ON  DIBLOCK?(2A)(POLYM? OR L5)
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L23           5 SEA ABB=ON  PLU=ON  IRON(3A)L22
                D SCAN
L24          24 SEA ABB=ON  PLU=ON  IRON(L)L22
L25          24 SEA ABB=ON  PLU=ON  L23 OR L24
L26        1849 SEA ABB=ON  PLU=ON  L8 OR (L18 OR L19 OR L20 OR L21) OR
                L24
L27           1 SEA ABB=ON  PLU=ON  L26 AND L12
                D SCAN
L28           1 SEA ABB=ON  PLU=ON  L26 AND L15
                D SCAN

     FILE 'REGISTRY' ENTERED AT 09:28:48 ON 31 AUG 2005
                E 39475-74-6/RN
L29           1 SEA ABB=ON  PLU=ON  39475-74-6/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 09:29:23 ON 31 AUG 2005
L30           5 SEA ABB=ON  PLU=ON  L29
                D SCAN
                D 1-5 KWIC
L31          20 SEA ABB=ON  PLU=ON  (IRON(A)ACRYLAT?)(2A)L5
L32          24 SEA ABB=ON  PLU=ON  L30 OR L31
L33           0 SEA ABB=ON  PLU=ON  L32 AND L12
L34           0 SEA ABB=ON  PLU=ON  L32 AND L15
L35             QUE ABB=ON  PLU=ON  FILM? OR THINFILM? OR LAYER? OR
                OVERLAY? OR OVERLAID? OR LAMIN? OR LAMEL? OR MULTILAYER?
                OR SHEET? OR LEAF? OR FOIL? OR COAT? OR TOPCOAT? OR
                OVERCOAT? OR VENEER? OR SHEATH? OR COVER? OR ENVELOP? OR
                ENCASE? OR ENWRAP? OR OVERSPREAD?
L36        7024 SEA ABB=ON  PLU=ON  L9 AND (L35(2A)(SUBSTRAT? OR
                SURFACE? OR BASE# OR SUBSTRUCT? OR UNDERSTRUCTUR? OR
                UNDERLAY? OR FOUNDATION? OR PANE? OR DISK? OR DISC# OR
                WAFER? OR PLATE OR PLATES))
L37           1 SEA ABB=ON  PLU=ON  L36 AND L12
                D SCAN
L38           6 SEA ABB=ON  PLU=ON  L36 AND VECTOR? AND L5
                D SCAN
L39           6 SEA ABB=ON  PLU=ON  L37 OR L38
L40           0 SEA ABB=ON  PLU=ON  L39 AND L15
L41           0 SEA ABB=ON  PLU=ON  L39 AND (PAYLOAD? OR PAY(A)LOAD?)
                D QUE L15
L42           4 SEA ABB=ON  PLU=ON  L39 AND (MOIET? OR UNIT? OR GROUP?
                OR FUNC?)
                D 1-4 KWIC
L43           3 SEA ABB=ON  PLU=ON  L12 AND (PATTERN? OR ETCH? OR CHASE#
                OR CHASING# OR ENCHAS? OR ENGRAV? OR EMBOSS? OR INCIS?
                OR IMPRINT? OR IMPRESS? OR ENCAUSTIC?)
                D SCAN
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L44           1 SEA ABB=ON  PLU=ON  L9 AND L43
                D SCAN
L45          41 SEA ABB=ON  PLU=ON  L9 AND VECTOR? AND (PATTERN? OR
                ETCH? OR CHASE# OR CHASING# OR ENCHAS? OR ENGRAV? OR
                EMBOSS? OR INCIS? OR IMPRINT? OR IMPRESS? OR ENCAUSTIC?)
L46           4 SEA ABB=ON  PLU=ON  L45 AND L5
                D SCAN
L47      295336 SEA ABB=ON  PLU=ON  L35 AND (PATTERN? OR ETCH? OR CHASE#
                OR CHASING# OR ENCHAS? OR ENGRAV? OR EMBOSS? OR INCIS?
                OR IMPRINT? OR IMPRESS? OR ENCAUSTIC?)
L48           2 SEA ABB=ON  PLU=ON  L47 AND L15
                D SCAN
L49          11 SEA ABB=ON  PLU=ON  L47 AND (PAYLOAD? OR PAY(A)LOAD?)
                D SCAN
                D 1-11 KWIC
L50           2 SEA ABB=ON  PLU=ON  L49 AND L9
                D SCAN
L51        2433 SEA ABB=ON  PLU=ON  NANOSPHER? OR NANO(A)SPHER?
L52      107980 SEA ABB=ON  PLU=ON  L9 OR L51
L53           3 SEA ABB=ON  PLU=ON  L52 AND L49
L54          15 SEA ABB=ON  PLU=ON  L52 AND L12
L55          15 SEA ABB=ON  PLU=ON  L13 OR L54
L56           1 SEA ABB=ON  PLU=ON  L52 AND L15
L57        3769 SEA ABB=ON  PLU=ON  L52 AND L47
                D QUE
L58           5 SEA ABB=ON  PLU=ON  L57 AND L26
L59           1 SEA ABB=ON  PLU=ON  L57 AND L12
                D QUE L42
L60           3 SEA ABB=ON  PLU=ON  L57 AND (PAYLOAD? OR PAY(A)LOAD?)
L61         734 SEA ABB=ON  PLU=ON  L57 AND (MOIET? OR UNIT? OR GROUP?
                OR FUNC?)
L62           1 SEA ABB=ON  PLU=ON  L60 AND L61
L63        1806 SEA ABB=ON  PLU=ON  PAYLOAD? OR PAY(A)LOAD?
L64          85 SEA ABB=ON  PLU=ON  L63 AND METAL?
L65           3 SEA ABB=ON  PLU=ON  L64 AND L52
L66           0 SEA ABB=ON  PLU=ON  L65 AND VECTOR?
L67           0 SEA ABB=ON  PLU=ON  L64 AND L12
L68           1 SEA ABB=ON  PLU=ON  L64 AND VECTOR?
L69        5967 SEA ABB=ON  PLU=ON  (IRON OR FE(A)ACRYLAT?)(2A)L5
L70           1 SEA ABB=ON  PLU=ON  L69 AND L12
L71           0 SEA ABB=ON  PLU=ON  L69 AND L15
L72           1 SEA ABB=ON  PLU=ON  L45 AND (L71 OR L26)
                D SCAN
L73           0 SEA ABB=ON  PLU=ON  L8 AND L51
L74           7 SEA ABB=ON  PLU=ON  L47 AND L8
                D SCAN
L75           0 SEA ABB=ON  PLU=ON  L74 AND BINDER?
L76        4140 SEA ABB=ON  PLU=ON  L47 AND BINDER?
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L77           0 SEA ABB=ON  PLU=ON  L76 AND L51
L78          23 SEA ABB=ON  PLU=ON  L13 OR L14 OR L16 OR L17 OR L27 OR
                L28 OR L39 OR (L42 OR L43 OR L44) OR L46
L79          32 SEA ABB=ON  PLU=ON  L48 OR L50 OR (L53 OR L54 OR L55 OR
                L56) OR (L58 OR L59 OR L60) OR L62 OR L65 OR L70 OR L72
                OR L74
L80          41 SEA ABB=ON  PLU=ON  L78 OR L79
L81          42 SEA ABB=ON  PLU=ON  L80 OR L68
L82           0 SEA ABB=ON  PLU=ON  L81 AND BINDER?
L83          19 SEA ABB=ON  PLU=ON  POLYVINYL(A)FERROCEN?
L84         422 SEA ABB=ON  PLU=ON  L83 OR L8
L85           0 SEA ABB=ON  PLU=ON  L51 AND L84
L86       61688 SEA ABB=ON  PLU=ON  NANOTUB? OR SWNT OR MWNT OR SWCNT OR
                CNT OR BUCKYTUB? OR (FULLERENE# OR NANO#(2A)(TUB? OR
                FIBER# OR PIP##### OR FILAMENT? OR WIRE? OR WIRING?)) OR
                NANOPIP? OR NANOFILAMENT? OR NANOFIBER? OR NANOFIBRE? OR
                NANOWIR?
L87       63971 SEA ABB=ON  PLU=ON  L86 OR L51
L88           4 SEA ABB=ON  PLU=ON  L87 AND L84
                D SCAN
L89           3 SEA ABB=ON  PLU=ON  L87 AND L12
L90           0 SEA ABB=ON  PLU=ON  L87 AND L15
L91        1737 SEA ABB=ON  PLU=ON  L47 AND L87
L92           0 SEA ABB=ON  PLU=ON  L91 AND L12
L93           6 SEA ABB=ON  PLU=ON  L91 AND VECTOR?
                D SCAN
L94           0 SEA ABB=ON  PLU=ON  L93 AND L63
L95           1 SEA ABB=ON  PLU=ON  L91 AND L63
                D SCAN
L96          53 SEA ABB=ON  PLU=ON  L81 OR L88 OR L89 OR L93 OR L95
L97          71 SEA ABB=ON  PLU=ON  POLY(A)DIMETHYLGLUTARIMID? OR PMGI

     FILE 'REGISTRY' ENTERED AT 11:18:05 ON 31 AUG 2005
                E PMGI/CN
                E POLY(N)DIMETHYLGLUTARIMIDE/CN
L98           5 SEA ABB=ON  PLU=ON  PMGI?/CN
                D SCAN
                E 793716-60-6/RN
L99           1 SEA ABB=ON  PLU=ON  793716-60-6/RN
                D SCAN
                E 119499-71-7/RN
L100          1 SEA ABB=ON  PLU=ON  119499-71-7/RN
                D SCAN
                D IDE
                E 253445-09-9/RN
L101          1 SEA ABB=ON  PLU=ON  253445-09-9/RN
                D SCAN
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     FILE 'HCAPLUS' ENTERED AT 11:22:00 ON 31 AUG 2005
L102         15 SEA ABB=ON  PLU=ON  L98
L103          1 SEA ABB=ON  PLU=ON  L99
L104         56 SEA ABB=ON  PLU=ON  L100
L105          2 SEA ABB=ON  PLU=ON  L101
L106         79 SEA ABB=ON  PLU=ON  L97 OR L102 OR L103 OR L105
L107         82 SEA ABB=ON  PLU=ON  L97 OR L106 OR PMGI?
L108       1010 SEA ABB=ON  PLU=ON  POLY(A)ETHYLENIMIN?

     FILE 'REGISTRY' ENTERED AT 11:26:40 ON 31 AUG 2005
               E 9002-98-6/RN
L109           1 SEA ABB=ON  PLU=ON  9002-98-6/RN
               D SCAN
               D IDE

     FILE 'HCAPLUS' ENTERED AT 11:27:33 ON 31 AUG 2005
L110        9747 SEA ABB=ON  PLU=ON  L109
L111         754 SEA ABB=ON  PLU=ON  ETHYLENIMIN?(A)L5
L112       10395 SEA ABB=ON  PLU=ON  L108 OR L110 OR L111
L113         889 SEA ABB=ON  PLU=ON  (L5 OR POLY)(A)(VINYL(A)PYRIDINE#)
L114         746 SEA ABB=ON  PLU=ON  (HOMOPOLYM? OR POLYM? OR POLY)(A)(VIN
               YL(A)PYRIDINE#)

     FILE 'REGISTRY' ENTERED AT 11:32:49 ON 31 AUG 2005
               E 9003-47-8/RN
L115           1 SEA ABB=ON  PLU=ON  9003-47-8/RN
               D SCAN

     FILE 'HCAPLUS' ENTERED AT 11:33:23 ON 31 AUG 2005
L116         993 SEA ABB=ON  PLU=ON  L115
L117        1763 SEA ABB=ON  PLU=ON  L113 OR L114 OR L116
L118        1590 SEA ABB=ON  PLU=ON  L114 OR L116
L119       68427 SEA ABB=ON  PLU=ON  (L5 OR POLY OR POLYM?)(A)(VINYL(A)ALC
               ?)

     FILE 'REGISTRY' ENTERED AT 11:36:02 ON 31 AUG 2005
               E 9002-89-5/RN
L120           1 SEA ABB=ON  PLU=ON  9002-89-5/RN
               D SCAN

     FILE 'HCAPLUS' ENTERED AT 11:36:39 ON 31 AUG 2005
L121       59483 SEA ABB=ON  PLU=ON  L120
L122       91658 SEA ABB=ON  PLU=ON  L119 OR L121 OR PVA
L123         455 SEA ABB=ON  PLU=ON  (L5 OR POLYM? OR POLY)(A)(ETHYLENE#(A
               )ACRYLIC?)

     FILE 'REGISTRY' ENTERED AT 11:39:46 ON 31 AUG 2005
               E 74-85-1/RN
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L124          1 SEA ABB=ON  PLU=ON  74-85-1/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 11:40:10 ON 31 AUG 2005
L125      88589 SEA ABB=ON  PLU=ON  L124
L126      88972 SEA ABB=ON  PLU=ON  L123 OR L125
L127     115818 SEA ABB=ON  PLU=ON  (L5 OR POLYM? OR POLY)(A)ACRYLIC?

     FILE 'REGISTRY' ENTERED AT 11:42:57 ON 31 AUG 2005
                E ACRYLIC ACID/CN
                E ACRYLIC ACID, HOMOPOLYMER/CN
                E ACRYLIC ACID HOMOPOLYMER/CN
L128          1 SEA ABB=ON  PLU=ON  ACRYLIC ACID HOMOPOLYMER/CN
                D SCAN
                D RN

     FILE 'HCAPLUS' ENTERED AT 11:44:29 ON 31 AUG 2005

     FILE 'REGISTRY' ENTERED AT 11:44:54 ON 31 AUG 2005
                E 9003-01-4/RN
L129          1 SEA ABB=ON  PLU=ON  9003-01-4/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 11:45:18 ON 31 AUG 2005
L130      18005 SEA ABB=ON  PLU=ON  L129
L131     124538 SEA ABB=ON  PLU=ON  L127 OR L130
L132       5332 SEA ABB=ON  PLU=ON  (L5 OR POLYM? OR POLY)(A)(MALEIC(A)AC
                ID?)

     FILE 'REGISTRY' ENTERED AT 11:48:20 ON 31 AUG 2005
                E 110-16-7/RN
L133          1 SEA ABB=ON  PLU=ON  110-16-7/RN
                D SCAN
                D IDE

     FILE 'HCAPLUS' ENTERED AT 11:49:04 ON 31 AUG 2005
L134      13858 SEA ABB=ON  PLU=ON  L133
L135      18329 SEA ABB=ON  PLU=ON  L132 OR L134
L136       8497 SEA ABB=ON  PLU=ON  (POLYAMIC? OR POLY(A)AMIC?)(A)ACID?

     FILE 'REGISTRY' ENTERED AT 11:52:43 ON 31 AUG 2005
                E POLYAMIC ACID/CN
                E AMIC ACID/CN
                E AMIC ACID HOMOPOLYMER/CN

     FILE 'HCAPLUS' ENTERED AT 11:54:03 ON 31 AUG 2005
L137      46814 SEA ABB=ON  PLU=ON  (POLY OR POLYM? OR HOMOPOLYM?)(A)(MET
                HYL(A)METHACRYLAT?)
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     FILE 'REGISTRY' ENTERED AT 11:57:16 ON 31 AUG 2005
                E 9011-14-7/RN
L138            1 SEA ABB=ON  PLU=ON  9011-14-7/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 11:57:42 ON 31 AUG 2005
L139        62490 SEA ABB=ON  PLU=ON  L138
L140        77681 SEA ABB=ON  PLU=ON  L139 OR L137
L141        15089 SEA ABB=ON  PLU=ON  (POLY OR POLYM? OR HOMOPOLYM?)(A)(ETH
                  YLENE(A)GLYCOL?)

     FILE 'REGISTRY' ENTERED AT 12:01:20 ON 31 AUG 2005
L142            1 SEA ABB=ON  PLU=ON  25322-68-3/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 12:01:45 ON 31 AUG 2005
L143        84350 SEA ABB=ON  PLU=ON  L142
L144        93438 SEA ABB=ON  PLU=ON  L143 OR L141
L145         2046 SEA ABB=ON  PLU=ON  (POLY OR POLYM? OR HOMOPOLYM?)(A)(PRO
                  PYLENE(A)GLYCOL?)

     FILE 'REGISTRY' ENTERED AT 12:03:38 ON 31 AUG 2005
                E 9003-07-0/RN
L146            1 SEA ABB=ON  PLU=ON  9003-07-0/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 12:04:41 ON 31 AUG 2005
L147       101259 SEA ABB=ON  PLU=ON  L146
L148       103259 SEA ABB=ON  PLU=ON  L145 OR L147
L149           59 SEA ABB=ON  PLU=ON  (POLY OR POLYM? OR HOMOPOLYM?)(A)(DIA
                  LKYLSILOXAN? OR DIALKYL(A)SILOXAN?)
L150         6875 SEA ABB=ON  PLU=ON  POLYSILANE# OR (POLY OR POLYM? OR
                  HOMOPOLYM?)(A)(SILANE#)

     FILE 'REGISTRY' ENTERED AT 12:09:04 ON 31 AUG 2005
                E POLYSILANE/CN
L151            1 SEA ABB=ON  PLU=ON  POLYSILANE/CN
                D SCAN
                D RN
L152            1 SEA ABB=ON  PLU=ON  32028-95-8/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 12:09:54 ON 31 AUG 2005
L153          106 SEA ABB=ON  PLU=ON  L152
L154         6892 SEA ABB=ON  PLU=ON  L150 OR L153
L155         9399 SEA ABB=ON  PLU=ON  SILSESQUIOXANE#
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     FILE 'REGISTRY' ENTERED AT 12:11:37 ON 31 AUG 2005
                E SILSESQUIOXANE/CN
                E SILSESQUIOXANES/CN
L156            1 SEA ABB=ON  PLU=ON  SILSESQUIOXANES/CN
                D SCAN
                D RN
                E SILSESQUIOXANES/PCT
                E SILSESQUIOXANES/PCT
                D L156 RN
L157            1 SEA ABB=ON  PLU=ON  308075-87-8/RN
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 12:17:58 ON 31 AUG 2005
L158            0 SEA ABB=ON  PLU=ON  L157
L159         9405 SEA ABB=ON  PLU=ON  SILSESQUIOXAN?
L160         5247 SEA ABB=ON  PLU=ON  (AL OR ALUMINUM? OR ALUMINIUM?)(2A)GE
                  L?
L161       174835 SEA ABB=ON  PLU=ON  POLYSTYREN? OR (POLY OR POLYM? OR
                  HOMOPOLYM?)(A)STYRENE#

     FILE 'REGISTRY' ENTERED AT 12:21:17 ON 31 AUG 2005
                E POLYSTYRENE/CN
L162            1 SEA ABB=ON  PLU=ON  POLYSTYRENE/CN
                D RN
L163            1 SEA ABB=ON  PLU=ON  9003-53-6/RN

     FILE 'HCAPLUS' ENTERED AT 12:22:06 ON 31 AUG 2005
L164       106139 SEA ABB=ON  PLU=ON  L163
L165       183857 SEA ABB=ON  PLU=ON  L161 OR L164
L166           10 SEA ABB=ON  PLU=ON  L96 AND (L107 OR L112 OR L117 OR
                  L122 OR L126 OR L131 OR L135 OR L136 OR L140 OR L144 OR
                  L148 OR L149 OR L154 OR L159 OR L160)
L167            3 SEA ABB=ON  PLU=ON  L166 AND FUNC?
                D SCAN
L168            7 SEA ABB=ON  PLU=ON  L166 NOT L167
L169           53 SEA ABB=ON  PLU=ON  L96 OR L166
L170            0 SEA ABB=ON  PLU=ON  (POLY OR POLYM? OR HOMOPOLYM?)(A)(VIN
                  YL(A)PRYRIDIME#)
L171            0 SEA ABB=ON  PLU=ON  L117(L)L165(L)(B(A)(IRON OR FE))
L172           18 SEA ABB=ON  PLU=ON  L165(L)(B(A)(IRON OR FE))
                D 1-9 KWIC
L173            0 SEA ABB=ON  PLU=ON  L117(L)(B(A)(IRON OR FE))
L174            4 SEA ABB=ON  PLU=ON  L165(3A)(B(A)(IRON OR FE))
L175            0 SEA ABB=ON  PLU=ON  L117(3A)(B(A)(IRON OR FE))
L176            0 SEA ABB=ON  PLU=ON  (L172 OR L174) AND L117
L177           18 SEA ABB=ON  PLU=ON  L172 OR L174
L178            0 SEA ABB=ON  PLU=ON  L169 AND L177
L179         5156 SEA ABB=ON  PLU=ON  (SPIN? OR LIQ?)(2A)CAST?
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L180          0 SEA ABB=ON  PLU=ON  L169 AND L179
L181        197 SEA ABB=ON  PLU=ON  L22(2A)A(2A)B
L182          0 SEA ABB=ON  PLU=ON  L169 AND L181
L183       2242 SEA ABB=ON  PLU=ON  L22(2A)(A OR B)
L184          0 SEA ABB=ON  PLU=ON  L169 AND L183
L185     321705 SEA ABB=ON  PLU=ON  (C OR CARBON OR H OR HYDROGEN OR N
                OR NITROGEN OR O OR OXYGEN)(A)ATOM?
L186          1 SEA ABB=ON  PLU=ON  L169 AND L185
                D SCAN
L187         53 SEA ABB=ON  PLU=ON  L169 OR L186
L188          9 SEA ABB=ON  PLU=ON  L187 AND (SILICON# OR SI OR AL OR
                ALUMINUM# OR ALUMINIUM)
                D 1-9 KWIC
L189          1 SEA ABB=ON  PLU=ON  L15(L)(SILICON# OR SI OR AL OR
                ALUMINUM# OR ALUMINIUM)
                D SCAN
L190          0 SEA ABB=ON  PLU=ON  L187 AND L189
L191         53 SEA ABB=ON  PLU=ON  L187 OR L188
L192    1854789 SEA ABB=ON  PLU=ON  THICK? OR THIN? OR WIDTH? OR NM OR
                NANOMET? OR NANO(A)(METER# OR METRE#)
L193         16 SEA ABB=ON  PLU=ON  L191 AND L192
L194         53 SEA ABB=ON  PLU=ON  L187 OR L193
L195      51668 SEA ABB=ON  PLU=ON  PHOTORESIST? OR PHOTO(A)RESIST#
L196          1 SEA ABB=ON  PLU=ON  L194 AND L195
                D SCAN
L197         53 SEA ABB=ON  PLU=ON  L194 OR L196
L198          2 SEA ABB=ON  PLU=ON  L197 AND BARRIER?
                D SCAN
L199         53 SEA ABB=ON  PLU=ON  L197 OR L198
L200          7 SEA ABB=ON  PLU=ON  L199 AND ORG?
L201         53 SEA ABB=ON  PLU=ON  L200 OR L199
L202      75066 SEA ABB=ON  PLU=ON  GLASS(A)TRANSITION?
L203          0 SEA ABB=ON  PLU=ON  L202 AND L201
L204            QUE ABB=ON  PLU=ON  HEAT? OR THERMOL? OR THERMAL? OR
                (HIGH## OR HEIGHTEN? OR RAIS? OR ELEVAT?)(2A)(TEMP# OR
                TEMPERATUR?) OR TEMP?
L205         11 SEA ABB=ON  PLU=ON  L201 AND L204
L206         53 SEA ABB=ON  PLU=ON  L201 OR L205
L207      24899 SEA ABB=ON  PLU=ON  REPEAT?(A)UNIT?
L208          1 SEA ABB=ON  PLU=ON  L206 AND L207
                D SCAN
L209         53 SEA ABB=ON  PLU=ON  L206 OR L208
L210     638757 SEA ABB=ON  PLU=ON  MU(W)M OR MICRON? OR MICROMET? OR
                MICRO(A)(METRE# OR METER#)
L211          4 SEA ABB=ON  PLU=ON  L209 AND L210
L212         53 SEA ABB=ON  PLU=ON  L209 OR L211
```

=> => d l212 1-53 cbib abs hitstr hitind

L212 ANSWER 1 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:739223 Synthesis and reactivity of **polymeric iron** complex biomaterials. Fraser, Cassandra L.; Pfister, Anne; Gorczynski, Jessica L.; Chen, Jianbin (Department of Chemistry, University of Virginia, Charlottesville, VA, 22904-4319, USA). Abstracts of Papers, 230th ACS National Meeting, Washington, DC, United States, Aug. 28-Sept. 1, 2005, INOR-271. American Chemical Society: Washington, D. C. (English) 2005. CODEN: 69HFCL.
AB Effective therapeutic treatments depend on both the drug and the method of delivery. Often drugs are loaded into **polymeric vectors**, which can be tagged with targeting mols., imaging agents and other features that control release at the desired site of action. Metal-based cancer therapeutics, diagnostics and imaging agents may also benefit from incorporation into polymer matrixes. To this end, bipyridine and dibenzoylmethane have been derivatized with biocompatible polymers, namely water soluble **poly(ethylene glycol)** and hydrophobic, biodegradable, poly(lactic acid), by controlled polymerization methods. Dibenzoylmethane is commonly used topically in sunscreens. It is also under consideration as a cancer preventative treatment due to its ability to diminish DNA damage and chemical carcinogenesis in skin, breast and prostate cancer models. Iron bpy PEG complexes show unexpected air sensitivity, perhaps generating reactive oxygen species that could be harnessed for selective tumor cell damage, as assembly- or hydrogel-forming PEG-PLA block copolymer analogs.

L212 ANSWER 2 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:739176 Porous silicon microparticles for molecular transport and delivery. Thomas, J. Christopher; Orosco, Manuel; Dorvee, Jason; Pacholski, Claudia; Sailor, Michael J. (Department of Chemistry and Biochemistry, University of California, San Diego, La Jolla, CA, 92093-0358, USA). Abstracts of Papers, 230th ACS National Meeting, Washington, DC, United States, Aug. 28-Sept. 1, 2005, INOR-224. American Chemical Society: Washington, D. C. (English) 2005. CODEN: 69HFCL.
AB A method for transporting and delivering small aliquots of biomols. using **micrometer**-sized magnetic porous silicon particles will be described. The particles are prepared from a single-crystal Si substrate by a combination of electrochem. and chemical processing steps. First, a porous silicon **film** is prepared by anodic electrochem. **etching** of single crystal Si. The **film** is then removed from the Si substrate and fractured into small particles. Finally, superparamagnetic Fe3O4 **nanoparticles** are infused into the **nanostructure** and fixed in place by a mild **thermal** oxidation Biomols. can be loaded into the porous magnetic particles by adsorption from aqueous

solution The composite particles can then be manipulated through air or liqs. by application of a magnetic field. When contacted to a water droplet, the particles self-assemble at the interface, delivering the biomol. **payload** into the liquid The delivery of a proteolytic enzyme **payload** as part of an enzymic assay will be presented.

L212 ANSWER 3 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:730189 Salmonella-like bioadhesive **nanoparticles.**
Salman, Hesham H.; Gamazo, Carlos; Campanero, Miguel A.; Irache, Juan M. (Centro Galenico, Facultad de Farmacia, University of Navarra, Apartado. 177, Pamplona, 31080). Journal of Controlled Release, 106(1-2), 1-13 (English) 2005. CODEN: JCREEC. ISSN: 0168-3659. Publisher: Elsevier B.V..

AB The aim of this work was to evaluate the bioadhesive potential of a **polymeric vector** obtained by the association between Gantrez AN **nanoparticles** and flagella-enriched Salmonella enteritidis extract Fluorescently labeled **nanoparticles** (SE-NP) were prepared, after incubation between the polymer and the extract, by a solvent displacement method and cross-linkage with 1,3-diaminopropane. SE-NP displayed a size close to 280 **nm** and the amount of associated bacterial extract was 18 μg/mg **nanoparticle.** Flagellin represents more than 80% of the total proteins associated with SE-NP, which was identified by SDS-PAGE and confirmed by Western blotting. Concerning the bioadhesive properties, SE-NP shows an important tropism for the ileum. In fact, about 50% of the given dose of SE-NP was found in this gut region for at least 3 h. Interestingly, the bioadhesive ability of SE-NP correlated well with the described colonisation profile for Salmonella enteritidis. This fact was corroborated by competitive tissue distribution studies. Thus, when SE-NP and Salmonella cells were administered together by the oral route, both the bacteria and the **nanoparticles** displayed a similar distribution within the intestinal mucosa. However, the ability of SE-NP to be taken up by Peyer's patches appeared to be neg. affected by the presence of the bacteria. Similarly, when SE-NP was administered 30 min before cells, SE-NP were found broadly distributed in Peyer's patches, whereas the bacteria were neither able to adhere to nor penetrate this lymphoid tissue. In summary, SE-NP demonstrated their Salmonella-like gut colonization, which can be a useful vector for oral targeting strategies.

CC 63 (Pharmaceuticals)

L212 ANSWER 4 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:672725 Document No. 143:163087 **Nanostructures** and methods of making the same. Moll, Nicolas J.; Roitman, Daniel B.; Lu, Jennifer Q. (USA). U.S. Pat. Appl. Publ. US 2005164132 A1 20050728, 10 pp. (English). CODEN: USXXCO. APPLICATION: US

10/766,639 Same as the appln

2004-766639 20040128.

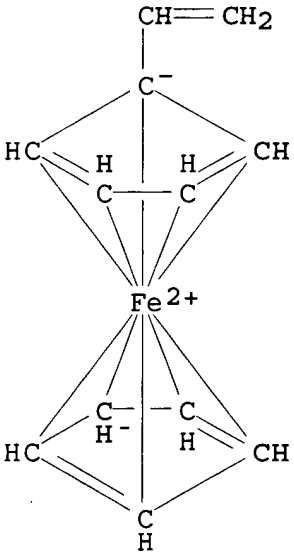
AB **Nanostructures** and methods of making the same are described. In one aspect, a **film** including a **vector polymer** comprising a **payload moiety** is formed on a substrate. The **film** is **patterned. Organic** components of the **patterned film** are removed to form a **payload**-comprising **nanoparticle.**

IT **1271-51-8**, Vinylferrocene
RL: TEM (Technical or engineered material use); USES (Uses)
(**vector polymer** for **nanostructures**)

RN 1271-51-8 HCAPLUS

CN Ferrocene, ethenyl- (9CI) (CA INDEX NAME)

Same as the



IC ICM G03F007-00

INCL 430322000; 430330000

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

ST **nanostructure photoresist**

IT **Nanostructures**
Photoresists
(**nanostructures** and methods of making the same)

IT **1271-51-8**, Vinylferrocene
RL: TEM (Technical or engineered material use); USES (Uses)
(**vector polymer** for **nanostructures**)

L212 ANSWER 5 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

2005:559558 A Thermoresponsive Chitosan-NIPAAm/Vinyl Laurate **Copolymer Vector** for Gene Transfection. Sun, Shujun; Liu, Wenguang; Cheng, Nan; Zhang, Bingqi; Cao, Zhiqiang; Yao, Kangde; Liang, Dongchun; Zuo, Aijun; Guo, Gang; Zhang, Jingyu (Research Institute of Polymeric Materials, Tianjin University, Tianjin, 300072, Peop. Rep. China). Bioconjugate Chemistry, 16(4), 972-980 (English) 2005. CODEN: BCCHES. ISSN: 1043-1802. Publisher: American Chemical Society.

AB A carboxyl-terminated N-isopropylacrylamide/vinyl laurate (VL) copolymer was prepared and coupled with chitosan (mol. weight = 2000) to produce a chitosan-NIPAAm/VL copolymer (PNVLCS) vector. The aqueous solution of PNVLCS displayed an obvious thermoresponsive behavior with a lower critical solution **temperature** (LCST) about 26 °C. The transmission electron microscopy (TEM) showed that the size of PNVLCS/DNA complexes varied with charge ratios (+/-), and the smaller **nanoparticles** were formed at higher charge ratios. DLS revealed that the size of complex particles was dependent on **temperature** The results of **temperature**-variable CD (CD), UV, and electrophoresis retardation indicated that at lower charge ratios, DNA in the complexes assume a B conformation, whereas increasing charge ratios caused B → C type conformation transformation; the dissociation-formation of PNVLCS/DNA complexes could be tuned by varying **temperature**: at 37 °C, the collapse of PNIPAAm in PNVLCS was favorable for the formation of compact complexes, shielding more DNA from exposure; at 20 °C, the hydrated and extended PNIPAAm chains facilitated the unpacking of DNA from PNVLCS, increasing the exposure of DNA. PNVLCS was used to transfer plasmid-encoding β-galactosidase into C2C12 cells. The level of gene expression could be controlled by varying incubation **temperature** The transfection efficiency of PNVLCS was well improved by **temporarily** reducing culture **temperature** to 20 °C, whereas naked DNA and Lipofectamine 2000 did not demonstrate the characteristics of thermoresponsive gene transfection.

CC 63 (Pharmaceuticals)

L212 ANSWER 6 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

2005:448002 Document No. 143:165187 Tunable Magnetic Arrangement of **Iron** Oxide **Nanoparticles** in Situ Synthesized on the Solid Substrate from **Diblock Copolymer** Micelles. Yun, Sang-Hyun; Sohn, Byeong-Hyeok; Jung, Jin Chul; Zin, Wang-Cheol; Lee, Jin-Kyu; Song, Ohsung (Department of Materials Science and Engineering, Pohang University of Science and Technology, Pohang, 790-784, S. Korea). Langmuir, 21(14), 6548-6552 (English) 2005. CODEN: LANGD5. ISSN: 0743-7463. Publisher: American Chemical Society.

AB Hexagonal arrangement of **iron** oxide **nanoparticles** was fabricated by using a single-**layered film** of

diblock copolymer micelles. The synthesis was directly performed on the solid substrate by oxygen plasma with preserving the dimensional order of micelles so that sep. procedures for synthesis and deposition of **nanoparticles** were not necessary. Since the oxygen plasma treatment also eliminated polymers, pure **patterns** of **iron** oxide **nanoparticles** were obtained. Also, easy control over the size of **nanoparticles** enabled the authors to selectively create a ferrimagnetic or a superparamagnetic **pattern** of **iron** oxide **nanoparticles** without altering the fabrication process.

CC 77-8 (Magnetic Phenomena)

ST **iron** oxide magnetic **nanoparticle diblock copolymer** micelle

IT Magnetic particles
Micelles
Nanoparticles
X-ray photoelectron spectroscopy
(tunable magnetic arrangement of **iron** oxide **nanoparticles** in situ synthesized from **diblock copolymer** micelles on silicon substrate)

IT 1332-37-2P, **Iron** oxide, properties
RL: PRP (Properties); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(tunable magnetic arrangement of **iron** oxide **nanoparticles** in situ synthesized from **diblock copolymer** micelles on silicon substrate)

IT 1337-81-1, Vinylpyridine 7705-08-0, **Iron** chloride (FeCl3), reactions 9019-70-9, Styrene-vinylpyridine copolymer
RL: RCT (Reactant); RACT (Reactant or reagent)
(tunable magnetic arrangement of **iron** oxide **nanoparticles** in situ synthesized from **diblock copolymer** micelles on silicon substrate)

IT 7440-21-3, Silicon, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(tunable magnetic arrangement of **iron** oxide **nanoparticles** in situ synthesized from **diblock copolymer** micelles on silicon substrate)

L212 ANSWER 7 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

2005:325516 Document No. 142:379465 Prosthetic implants with **functionalized** carbon surfaces. Rathenow, Jorg; Asgari, Soheil; Ban, Andreas; Kunstmann, Jurgen; Mayer, Bernhard (Germany). U.S. Pat. Appl. Publ. US 2005079201 A1 20050414, 15 pp., Cont.-in-part of Appl. No. PCT/EP04/05785. (English). CODEN: USXXCO. APPLICATION: US 2004-939021 20040910. PRIORITY: DE 2003-10324415 20030528; DE 2003-10333098 20030721; DE 2003-10333099 20030721; WO 2004-EP5785 20040528.

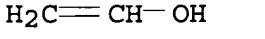
AB The invention relates to a method of producing medical implants having **functionalized** surfaces by providing a medical implant with at least one carbon-**based layer** on at least one part of the surface of the implant, activating the carbon-**based layer** by creating porosity and **functionalizing** the activated carbon-**based layer.** This invention also relates to **functionalized** implants obtained in by this method (no data).

IT **9002-89-5 9003-01-4**, Polyacrylic acid
9003-07-0 25322-68-3, Polyethylene oxide
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prosthetic implants with **functionalized** carbon surfaces)

RN 9002-89-5 HCAPLUS
CN Ethenol, homopolymer (9CI) (CA INDEX NAME)

CM 1

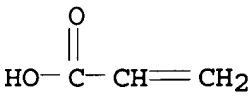
CRN 557-75-5
CMF C2 H4 O



RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2

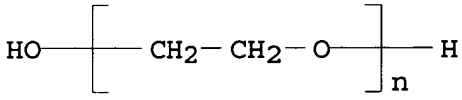


RN 9003-07-0 HCAPLUS
CN 1-Propene, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 115-07-1
CMF C3 H6

RN 25322-68-3 HCAPLUS
CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



IC ICM B05D003-04
ICS A61F002-02; B05D003-10
INCL 424424000; 623023740; 424426000; 427002210; 427002240
CC 63-7 (Pharmaceuticals)
ST prosthetic implant **functionalized** carbon surface
IT Proteins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(S; prosthetic implants with **functionalized** carbon surfaces)
IT Polycarbonates, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(alkyl derivs.; prosthetic implants with **functionalized** carbon surfaces)
IT Bone
Heart
(artificial; prosthetic implants with **functionalized** carbon surfaces)
IT Vapor deposition process
(chemical; prosthetic implants with **functionalized** carbon surfaces)
IT Bond
(covalent; prosthetic implants with **functionalized** carbon surfaces)
IT Gases
(dispersions; prosthetic implants with **functionalized** carbon surfaces)
IT Prosthetic materials and Prosthetics
(endoprosthetic, vascular; prosthetic implants with **functionalized** carbon surfaces)
IT Prosthetic materials and Prosthetics
(implants; prosthetic implants with **functionalized** carbon surfaces)

IT Carbonitrides
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(metal; prosthetic implants with **functionalized** carbon surfaces)
IT Emulsions
(microemulsions; prosthetic implants with **functionalized** carbon surfaces)
IT Drug delivery systems
(nanocapsules; prosthetic implants with **functionalized** carbon surfaces)
IT **Nanostructures**
Spheres
(nanospheres; prosthetic implants with **functionalized** carbon surfaces)
IT Polyethers, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ortho ester **group**-containing; prosthetic implants with **functionalized** carbon surfaces)
IT Prosthetic materials and Prosthetics
(orthopedic; prosthetic implants with **functionalized** carbon surfaces)
IT Acids, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(oxidizing; prosthetic implants with **functionalized** carbon surfaces)
IT Carbides
Oxides (inorganic), biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(oxycarbides, metal; prosthetic implants with **functionalized** carbon surfaces)
IT Vapor deposition process
(phys.; prosthetic implants with **functionalized** carbon surfaces)
IT Polyamides, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(poly(amino acids); prosthetic implants with **functionalized** carbon surfaces)
IT Polyureas
Polyurethanes, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyester-; prosthetic implants with **functionalized**

carbon surfaces)
IT Polyurethanes, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyether-; prosthetic implants with **functionalized** carbon surfaces)
IT Vinyl compounds, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**polymers**; prosthetic implants with **functionalized** carbon surfaces)
IT Polyesters, biological studies
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyurea-; prosthetic implants with **functionalized** carbon surfaces)
IT Absorption
Adsorption
Air
Animal cell
Animal tissue
Animal tissue culture
Bone
Cations
Ceramics
Chemisorption
Embryophyta
Emulsions
Ions
Liposomes
Micelles
Microcapsules
Microorganism
Nanoparticles
Physisorption
Porosity
Solvents
Sputtering
Viral **vectors**
(prosthetic implants with **functionalized** carbon surfaces)
IT **Acrylic polymers**, biological studies
Albumins, biological studies
Alloys, biological studies
Amino acids, biological studies
Carbides
Carbon fibers, biological studies
Caseins, biological studies

Collagens, biological studies
Fibrinogens
Gelatins, biological studies
Glass, biological studies
Metals, biological studies
Minerals, biological studies
Oxynitrides
Peptides, biological studies
Plastics, biological studies
Polyamides, biological studies
Polyanhydrides
Polyesters, biological studies
Polyethers, biological studies
Polymers, biological studies
Polyoxyalkylenes, biological studies
Polyphosphazenes
Polysaccharides, biological studies
Polysiloxanes, biological studies
Polyurethanes, biological studies
Proteins
Salts, biological studies
Stone (construction material)
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prosthetic implants with **functionalized** carbon surfaces)

IT Aluminates
Silicates, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(prosthetic implants with **functionalized** carbon surfaces)

IT Antibodies and Immunoglobulins
Calmodulins
Carbohydrates, biological studies
Enzymes, biological studies
Phospholipids, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prosthetic implants with **functionalized** carbon surfaces)

IT Medical goods
(stents; prosthetic implants with **functionalized** carbon surfaces)

IT Heart
(valve, artificial; prosthetic implants with **functionalized** carbon surfaces)

IT 7440-66-6, Zinc, biological studies

RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(cations; prosthetic implants with **functionalized** carbon surfaces)

IT 79-41-4D, esters, **polymers** of 107-73-3, Phosphorylcholine. 7440-02-0, Nickel, biological studies 7440-05-3, Palladium, biological studies 7440-06-4, Platinum, biological studies 7440-25-7, Tantalum, biological studies 7440-32-6, Titanium, biological studies 7440-44-0, Carbon, biological studies 7440-48-4, Cobalt, biological studies 7440-50-8, Copper, biological studies 7440-57-5, Gold, biological studies 9000-07-1, Carrageenan 9002-88-4, Polyethylene **9002-89-5 9003-01-4**, Polyacrylic acid **9003-07-0** 9004-32-4, Carboxymethyl cellulose 9004-61-9, Hyaluronic acid 9004-64-2, Hydroxypropyl cellulose 9004-65-3, Hydroxypropylmethyl cellulose 9004-67-5, Methyl cellulose 9005-25-8, Starch, biological studies 9005-32-7, Alginic acid 9012-76-4, Chitosan 12597-68-1, Stainless steel, biological studies 12683-48-6 24937-78-8, Poly(ethylene vinyl acetate) 25038-59-9, biological studies 25087-26-7 25104-18-1, Poly-L-lysine 25190-06-1, Polytetramethylene glycol **25322-68-3**, Polyethylene oxide 25322-69-4, Polypropylene oxide 26009-03-0, Poly(glycolide) 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26063-00-3, Poly(hydroxybutyrate) 26202-08-4, Poly(glycolide) 26680-10-4, Poly(lactide) 26744-04-7 30209-88-2 31621-87-1, Polydioxanone 34346-01-5 38000-06-5, Poly-L-lysine 52013-44-2, Nitinol 53237-50-6 78644-42-5, Poly(malic acid) 102190-94-3, Poly(hydroxyvaleric acid) 111985-13-8 681029-93-6, Carboxymethylcellulose phthalate 691397-13-4, Pluronic
RL: DEV (Device component use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prosthetic implants with **functionalized** carbon surfaces)

IT 1344-28-1, Alumina, uses 7782-44-7, Oxygen, uses 10024-97-2, Nitrous oxide, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process); USES (Uses)
(prosthetic implants with **functionalized** carbon surfaces)

IT 70-18-8, Glutathione, biological studies 1398-61-4, Chitin 9004-34-6, Cellulose, biological studies 9004-54-0, Dextrans, biological studies 9013-20-1, Streptavidin 439211-02-6, StrepTactin
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(prosthetic implants with **functionalized** carbon surfaces)

L212 ANSWER 8 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:312204 Document No. 142:415110 New materials for large caliber projectiles take aim at future threats. Dowding, Robert J.; Cho, Kyu C.; Drysdale, William H.; Kecskes, Laszlo J.; Minnicino, Michael A.; Staker, Michael R. (Weapons and Materials Research Directorate, US Army Research Laboratory, Aberdeen Proving Ground, MD, USA). AMPTIAC Quarterly, 8(4), 71-78 (English) 2004. CODEN: ANMECV. Publisher: AMPTIAC.
AB A review. A survey on alternative materials and manufacturing technologies to maximize the desired projectile mech. and phys. properties and thus optimize munitions lethality and ballistic penetration performance. The topics discussed are related to long rod kinetic energy penetrators and their severe plastic deformation behavior (U alloys, **nanocryst.** W alloys, bulk-**metallic** glass-matrix composites), composites for large caliber sabots, MMC for high **payload** munitions, and enabling materials for frangible projectiles.
CC 56-0 (Nonferrous Metals and Alloys)

L212 ANSWER 9 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:272889 Document No. 142:303266 **Nanoparticles** for gene transfer: Exotic or alternative?. Kneuer, Carsten (Surface & Interface Technologies Rosenhof GmbH, Borsdorf, 04451, Germany). Bioforum, 25(4), 210-211 (German) 2002. CODEN: BFRME3. ISSN: 0940-0079. Publisher: G.I.T. Verlag Publishing Ltd..
AB A review is given on **nanoparticles** for efficient DNA delivery in gene therapy.
CC 63-0 (Pharmaceuticals)
ST review **nanoparticle polymer vector** gene therapy
IT Gene therapy
(**nanoparticles** for efficient DNA delivery in gene therapy)
IT DNA
Polymers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**nanoparticles** for efficient DNA delivery in gene therapy)
IT Drug delivery systems
(**nanoparticles**; **nanoparticles** for efficient DNA delivery in gene therapy)

L212 ANSWER 10 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:40136 Document No. 143:13104 Compacted DNA **nanoparticles** administered to the nasal mucosa of cystic fibrosis subjects are safe and demonstrate partial to complete cystic fibrosis transmembrane regulator reconstitution. Konstan, Michael W.; Davis,

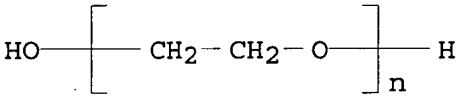
Pamela B.; Wagener, Jeffrey S.; Hilliard, Kathleen A.; Stern, Robert C.; Milgram, Laura J. H.; Kowalczyk, Tomasz H.; Hyatt, Susannah L.; Fink, Tamara L.; Gedeon, Christopher R.; Oette, Sharon M.; Payne, Jennifer M.; Muhammad, Osman; Ziady, Assem G.; Moen, Robert C.; Cooper, Mark J. (Department of Pediatrics, Case Western Reserve University School of Medicine, Cleveland, OH, 44106, USA). Human Gene Therapy, 15(12), 1255-1269 (English) 2004. CODEN: HGTHE3. ISSN: 1043-0342. Publisher: Mary Ann Liebert, Inc..

AB A double-blind, dose escalation gene transfer trial was conducted in subjects with cystic fibrosis (CF), among whom placebo (saline) or compacted DNA was superfused onto the inferior turbinate of the right or left nostril. The vector consisted of single mols. of plasmid DNA carrying the cystic fibrosis transmembrane regulator-encoding gene compacted into DNA **nanoparticles**, using polyethylene glycol-substituted 30-mer lysine peptides. Entry criteria included age greater than 18 years, FEV1 exceeding 50% predicted, and basal nasal p.d. (NPD) isoproterenol responses (≥-5 mV) that are typical for subjects with classic CF. Twelve subjects were enrolled: 2 in dose level I (DLI) (0.8 mg DNA), 4 in DLII (2.67 mg), and 6 in DLIII (8.0 mg). The primary trial end points were safety and tolerability, and secondary gene transfer end points were assessed. In addition to routine clin. assessments and laboratory tests, subjects were serially evaluated for serum IL-6, complement, and C-reactive protein; nasal washings were taken for cell counts, protein, IL-6, and IL-8; and pulmonary function and hearing tests were performed. No serious adverse events occurred, and no events were attributed to compacted DNA. There was no association of serum or nasal washing inflammatory mediators with administration of compacted DNA. Day 14 **vector polymerase** chain reaction anal. showed a mean value in DLIII nasal scraping samples of 0.58 copy per cell. Partial to complete NPD isoproterenol responses were observed in eight subjects: one of two in DLI, three of four in DLII, and four of six in DLIII. Corrections persisted for as long as 6 days (1 subject to day 28) after gene transfer. In conclusion, compacted DNA **nanoparticles** can be safely administered to the nares of CF subjects, with evidence of vector gene transfer and partial NPD correction.

IT **25322-68-3**, Polyethylene glycol
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compacted DNA **nanoparticles** administration to nasal mucosa of cystic fibrosis subjects and demonstration of partial to complete CFTR reconstitution)

RN 25322-68-3 HCAPLUS

CN Poly(oxy-1,2-ethanediyl), α-hydro-ω-hydroxy- (9CI) (CA INDEX NAME)



CC 63-5 (Pharmaceuticals)
Section cross-reference(s): 1, 3, 14
ST DNA **nanoparticle** nasal mucosa human cystic fibrosis; CFTR
DNA **nanoparticle** nasal mucosa human cystic fibrosis
IT Cystic fibrosis
Drug delivery systems
Gene therapy
Genetic vectors
Human
(compacted DNA **nanoparticles** administration to nasal mucosa of cystic fibrosis subjects and demonstration of partial to complete CFTR reconstitution)
IT CFTR (cystic fibrosis transmembrane conductance regulator)
DNA
Polyoxyalkylenes, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compacted DNA **nanoparticles** administration to nasal mucosa of cystic fibrosis subjects and demonstration of partial to complete CFTR reconstitution)
IT Peptides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(lysine; compacted DNA **nanoparticles** administration to nasal mucosa of cystic fibrosis subjects and demonstration of partial to complete CFTR reconstitution)
IT Nose
(mucosa; compacted DNA **nanoparticles** administration to nasal mucosa of cystic fibrosis subjects and demonstration of partial to complete CFTR reconstitution)
IT **25322-68-3**, Polyethylene glycol
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compacted DNA **nanoparticles** administration to nasal mucosa of cystic fibrosis subjects and demonstration of partial to complete CFTR reconstitution)

L212 ANSWER 11 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2005:19179 Document No. 143:120190 High performance gene delivery **polymeric vector: Nano-structured** cationic star polymers (star vectors). Nakayama, Yasuhide; Masuda, Takeshi; Nagaishi, Makoto; Hayashi, Michiko; Ohira, Moto; Harada-Shiba, Mariko (Department of Bioengineering, National Cardiovascular Center Research Institute, Osaka, 565-8565, Japan). Current Drug Delivery, 2(1), 53-57 (English) 2005. CODEN: CDDUBJ. ISSN: 1567-2018. Publisher: Bentham Science Publishers

Ltd..

AB **Nano-structured** hyperbranched cationic star polymers, called star vectors, were molecularly designed for a novel gene delivery non-viral vector. The linear and 3, 4 or 6 branched water-soluble cationic polymers, which had same mol. weight of .apprx.18,000, were synthesized by iniferter (initiator-transfer agent-terminator)-based photo-living-radical polymerization of 3-(N,N-dimethylamino)propyl acrylamide, initiated from resp. multi-dithiocarbamate-derivatized benzenes as an iniferter. All polymers produced polyion complexes 'polyplexes' by mixing with pDNA (pGL3-control plasmid), in which the particle size was .apprx.250 **nm** in diameter [the charge ratio < 2/1 (vector/pDNA)] and .apprx.150 **nm** (the charge ratio > 2.5/1), and the ζ-potential was .apprx.+10 mV (the charge ratio > 1/1). When COS-1 cells were incubated with the polyplexes 12h after preparation under the charge ratio of 5/1, higher gene expression was obtained as an increase in branching, with a little cytotoxicity. The relative gene expression to the linear polymer was about 2, 5, and 10 times in 3-, 4-, and 6-branched polymers, resp. The precise change in branching of polymers enabled the control of the gene transfer activity.

CC 63-5 (Pharmaceuticals)

IT Gene therapy
Genetic vectors
Particle size
Plasmid vectors
Transformation, genetic
Zeta potential
(**nano-structured** cationic star polymers as gene delivery vectors)

IT DNA
RL: BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**nano-structured** cationic star polymers as gene delivery vectors)

IT Polymers, biological studies
RL: BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(star-branched; **nano-structured** cationic star polymers as gene delivery vectors)

IT 3052-61-7D, reaction products with dimethylaminopropylacrylamide polymers 27754-92-3D, benzenethiocarbamate-initiated derivs. 92687-20-2D, reaction products with dimethylaminopropylacrylamide polymers 782481-61-2D, reaction products with dimethylaminopropylacrylamide polymers 782481-62-3D, reaction products with dimethylaminopropylacrylamide polymers
RL: BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(**nano-structured** cationic star polymers as gene delivery vectors)

IT 148-18-5, Sodium N,N-diethyldithiocarbamate 3052-61-7, Benzyl N,N-diethyldithiocarbamate 25168-05-2, Chloromethyl benzene
RL: RCT (Reactant); RACT (Reactant or reagent)
(**nano-structured** cationic star polymers as gene delivery vectors)

L212 ANSWER 12 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:1012268 Document No. 142:135743 Using Block Copolymer Micellar **Thin Films** as **Templates** for the Production of Catalysts for Carbon Nanotube Growth. Bennett, R. D.; Xiong, G. Y.; Ren, Z. F.; Cohen, R. E. (Department of Chemical Engineering, Massachusetts Institute of Technology, Cambridge, MA, 02140, USA). Chemistry of Materials, 16(26), 5589-5595 (English) 2004. CODEN: CMATEX. ISSN: 0897-4756. Publisher: American Chemical Society.

AB We report a novel approach that uses block copolymer micelles as a means to create large area arrays of iron-containing nanoclusters capable of catalyzing the growth of carbon nanotubes (CNTs). The amphiphilic block copolymer poly(styrene-block-acrylic acid) (PS-b-PAA) forms micelles in solution which are capable of self-**organizing** into ordered structures on surfaces. By spin-**coating** these solns. onto a variety of substrates, we can create quasi-hexagonal arrays of PAA spheres within a PS matrix. The carboxylic acids groups in the PAA domains can be utilized in an ion-exchange protocol to selectively sequester iron ions, which results in iron-containing nanoclusters that are nearly monodisperse in size (diameter .apprx.8 **nm**) and **patterned** at a d. of approx. 1011 particles per cm2. In principle, this route for synthesizing iron-containing nanoclusters offers the capability of controlling the cluster size and spacing by altering the mol. weight of the block copolymer. In this report, we demonstrate the ability of these block-copolymer-**templated** iron-containing nanocluster arrays to catalyze the growth of CNTs in a **thermal** chemical vapor deposition (CVD) process. We present transmission electron microscope (TEM) and scanning electron microscope (SEM) images of the as-grown CNTs still attached to their growth substrate, which allows us to characterize both the CNTs and the catalytic nanoclusters after CVD growth.

CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 49

ST styrene block copolymer micelle **template** carbon nanotube catalyst; acrylic acid block copolymer micelle **template** carbon nanotube catalyst

IT Nanotubes
(carbon; using acrylic acid-styrene **diblock copolymer** micellar **thin films** as

templates for production of iron-containing nanocluster catalysts for carbon nanotube growth)

IT Clusters
Nanoparticles
(nanoclusters; using acrylic acid-styrene diblock copolymer micellar thin films as templates for production of iron-containing nanocluster catalysts for carbon nanotube growth)

IT Catalysts
Micelles
(using acrylic acid-styrene diblock copolymer micellar thin films as templates for production of iron-containing nanocluster catalysts for carbon nanotube growth)

IT 7440-44-0, Carbon, processes
RL: PEP (Physical, engineering or chemical process); PYP (Physical process); PROC (Process)
(nanotubes; using acrylic acid-styrene diblock copolymer micellar thin films as templates for production of iron-containing nanocluster catalysts for carbon nanotube growth)

IT 1309-37-1P, Iron oxide, uses
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(using acrylic acid-styrene diblock copolymer micellar thin films as templates for production of iron-containing nanocluster catalysts for carbon nanotube growth)

IT 709024-68-0, Acrylic acid-styrene diblock copolymer
RL: NUU (Other use, unclassified); USES (Uses)
(using acrylic acid-styrene diblock copolymer micellar thin films as templates for production of iron-containing nanocluster catalysts for carbon nanotube growth)

IT 7705-08-0, Ferric chloride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(using acrylic acid-styrene diblock copolymer micellar thin films as templates for production of iron-containing nanocluster catalysts for carbon nanotube growth)

L212 ANSWER 13 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:821440 Document No. 142:11402 Molecular structures of poly(ethylene glycol)-modified nonviral gene delivery polyplexes. Guo, Yan; Sun, Ye; Li, Gang; Xu, Yuhong (School of Life Science & Biotechnology, Shanghai Jiao-Tong University, Shanghai, 200030, Peop. Rep. China). Molecular

Pharmaceutics, 1(6), 477-482 (English) 2004. CODEN: MPOHBP. ISSN: 1543-8384. Publisher: American Chemical Society.

AB Polycations can complex with DNA and form compact **nanoparticles** (polyplexes) to facilitate gene transfection. Recently, **poly(ethylene glycol)** (PEG) was incorporated in the polyplexes to improve their in vivo stability and defer body clearance. This work provided a direct look using atomic force microscopy at the mol. conformation of PEG mols. on the polyplex surfaces. Individual PEG strands were seen to extend from the compact cores and intertwined with each other to form the protective **surface layer.**

CC 63-5 (Pharmaceuticals)
Section cross-reference(s): 35

ST mol structure PEG polylysine DNA **copolymer** gene delivery polyplex

IT DNA
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(complexes, with **polymers**; mol. structures of **poly(ethylene glycol)**-modified nonviral gene delivery polyplexes of DNA and polylysine)

IT Atomic force microscopy
Conformation
Genetic **vectors**
Microstructure
Molecular structure
Particle size
(mol. structures of **poly(ethylene glycol)**-modified nonviral gene delivery polyplexes of DNA and polylysine)

IT Drug delivery systems
(polyplexes **nanoparticle**; mol. structures of **poly(ethylene glycol)**-modified nonviral gene delivery polyplexes of DNA and polylysine)

IT 25104-18-1D, Polylysine, complexes with DNA 38000-06-5D, Polylysine, complexes with DNA 143073-46-5D, complexes with DNA
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(mol. structures of **poly(ethylene glycol)**-modified nonviral gene delivery polyplexes of DNA and polylysine)

L212 ANSWER 14 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:726049 Document No. 142:62452 Skin penetration and distribution of polymeric **nanoparticles.** Alvarez-Roman, R.; Naik, A.; Kalia, Y. N.; Guy, R. H.; Fessi, H. (Centre Interuniversitaire de Recherche et d'enseignement, Universities of Geneva and Lyon, Archamps, Fr.). Journal of Controlled Release, 99(1), 53-62

(English) 2004. CODEN: JCREEC. ISSN: 0168-3659. Publisher: Elsevier B.V..

AB Encapsulation using **nanoparticulate** systems is an increasingly implemented strategy in drug targeting and delivery. Such systems were also proposed for topical administration to enhance percutaneous transport into and across the skin **barrier.** However, the mechanism by which such particulate formulations facilitate skin transport remains ambiguous. In this study, confocal laser scanning microscopy (CLSM) was used to visualize the distribution of non-biodegradable, fluorescent, polystyrene **nanoparticles** (diams. 20 and 200 **nm**) across porcine skin. The surface images revealed that (i) polystyrene **nanoparticles** accumulated preferentially in the follicular openings, (ii) this distribution increased in a time-dependent manner, and (iii) the follicular localization was favored by the smaller particle size. Apart from follicular uptake, localization of **nanoparticles** in skin "furrows" was apparent from the surface images. However, cross-sectional images revealed that these non-follicular structures did not offer an alternative penetration pathway for the **polymer vectors**, whose transport was clearly impeded by the stratum corneum.

CC 63-5 (Pharmaceuticals)

ST polystyrene **nanoparticle** permeation skin hair follicle

IT Hair
(follicle; skin penetration and distribution of polymeric **nanoparticles**)

IT Drug delivery systems
(**nanoparticles**; skin penetration and distribution of polymeric **nanoparticles**)

IT Biological transport
(permeation; skin penetration and distribution of polymeric **nanoparticles**)

IT Particle size
Permeability
Skin
(skin penetration and distribution of polymeric **nanoparticles**)

IT Skin
(stratum corneum; skin penetration and distribution of polymeric **nanoparticles**)

IT Drug delivery systems
(transdermal; skin penetration and distribution of polymeric **nanoparticles**)

IT 9003-53-6, Polystyrene
RL: PKT (Pharmacokinetics); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(skin penetration and distribution of polymeric

nanoparticles)

L212 ANSWER 15 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:660689 Amphiphilic **nanoparticles** and polyanions. Fleischer Radu, Judit Eva; Novak, Levente; Hartmann, John F.; Borbely, Janos (Department of Colloid and Environmental Chemistry, University of Debrecen, Debrecen, Hung.). Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004, POLY-227. American Chemical Society: Washington, D. C. (English) 2004. CODEN: 69FTZ8.

AB We have engineered core and core-shell particles starting with poly-gamma-glutamic acid (PGA) for drug delivery systems. Using PGA, we have also developed biopolymer- based **nanoparticles** that form heavy-**metal** complexes for the removal of pollutants from water. The particles are designed as spherical cores and/or core-shell macromol. particles. The core-shell morphol. allows incorporation of lipophilic/**organophilic** or hydrophilic **payloads** for cosmetic or for drug delivery purposes. The present structure describe hydrophilic and amphiphilic **nanoparticles.** Our GPC measurements, have demonstrated that as the ratio of crosslinking increases, the dimensions of the particle decrease. PGA and its derivs. can be used as drug delivery systems, wound healing promoters or artificial tissue in medicine.

L212 ANSWER 16 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:603208 Document No. 141:296841 Phase segregation of **thin** film **polymer** blends on Au nanopatterned **Si** substrates. Jerome, J.; Zhu, S.; Seo, Y.-S.; Ho, M.; Pernodet, N.; Gambino, R.; Sokolov, J.; Rafailovich, M. H.; Zaitsev, V.; Schwarz, S.; DiNardo, Robert (Department of Materials Science and Engineering, State University of New York at Stony Brook, Stony Brook, NY, 11794-2275, USA). Macromolecules, 37(17), 6504-6510 (English) 2004. CODEN: MAMOBX. ISSN: 0024-9297. Publisher: American Chemical Society.

AB We present a method for producing nano- to submicron scale, chemical heterogeneous surface **patterns** using an Ar ion mill. To observe effects of the **pattern** on dewetting, **thin** films of PS and PMMA blends were spun-cast and annealed on these surfaces. In hole morphologies the as-cast samples phase segregated with q2 .apprx. q1/2, where q2 and q1 are the wave **vectors** characterizing the air interface morphol. and the Au/**Si** **pattern**, resp. Annealing resulted in the formation of a heterogeneous **surface** adsorbed phase **covered** by a PS layer at the air interface. The wave **vector** of the adsorbed phase, q4, obeyed the relationship q4 .apprx. q1/2 for holes and q4 .apprx. 2q1 for islands. The PS layer was observed to completely wet the **surface** adsorbed **layer** when

the PS and PMMA domains were bicontinuous. Partial wetting occurred when either the PS or PMMA phase in the adsorbed layer was discontinuous.

CC 38-3 (Plastics Fabrication and Uses)
ST PMMA polystyrene blend **thin** film phase segregation
IT Annealing
(effect on; phase segregation of **thin** film **polymer** blends on Au nanopatterned **Si** substrates)
IT Contact angle
Nanostructures
Surface
(phase segregation of **thin** film **polymer** blends on Au nanopatterned **Si** substrates)
IT **Polymer** blends
RL: PRP (Properties)
(phase segregation of **thin** film **polymer** blends on Au nanopatterned **Si** substrates)
IT **Polymer** morphology
(phase; phase segregation of **thin** film **polymer** blends on Au nanopatterned **Si** substrates)
IT 7440-57-5, Gold, miscellaneous
RL: MSC (Miscellaneous)
(phase segregation of **thin** film **polymer** blends on Au nanopatterned **Si** substrates)

L212 ANSWER 17 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:569668 Document No. 141:111605 Polymer-based microparticulate and **nanoparticulate** drug delivery systems. Prokop, Ales; Davidson, Jeffrey M.; Carlesso, Gianluca; Unutmaz, Derya (USA). U.S. Pat. Appl. Publ. US 2004136961 A1 20040715, 22 pp., Cont.-in-part of U.S. Ser. No. 356,139. (English). CODEN: USXXCO. APPLICATION: US 2003-609722 20030630. PRIORITY: US 1997-PV62943 19971009; US 1998-169459 19981009; US 2003-356139 20030131.

AB The present invention provides compns. comprising a water-based core solution and a water-based corona solution surrounding the core solution The compns. comprise polyanionic polymers and salts and polycationic polymers and cations and is useful for adenoviral delivery of a gene or delivery of another drug. The compns. may be **nanoparticulate**, microcapsular or form a polymeric sheet. Also provided are methods of use for the compns.

IT **9002-98-6D**, epichlorhydrin-modified
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymer-based microparticulate and **nanoparticulate** drug delivery systems)
RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

IC ICM A61K048-00
INCL 424093200
CC 63-6 (Pharmaceuticals)
ST polymer drug delivery microparticle; **nanoparticle** drug delivery polymer
IT Thrombospondins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(1; polymer-based microparticulate and **nanoparticulate** drug delivery systems)
IT Thrombospondins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(2; polymer-based microparticulate and **nanoparticulate** drug delivery systems)
IT Polyamides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Quaternized; polymer-based microparticulate and **nanoparticulate** drug delivery systems)
IT Agglutinins and Lectins
Polysaccharides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dextran-conjugated; polymer-based microparticulate and **nanoparticulate** drug delivery systems)
IT Drug delivery systems
(microparticles; polymer-based microparticulate and **nanoparticulate** drug delivery systems)
IT Salts, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(monovalent or divalent; polymer-based microparticulate and **nanoparticulate** drug delivery systems)
IT Drug delivery systems
(**nanoparticles**; polymer-based microparticulate and **nanoparticulate** drug delivery systems)
IT Adenoviral **vectors**
Animal
Crosslinking agents
Gene therapy

Human
(**polymer**-based microparticulate and **nanoparticulate** drug delivery systems)

IT Nucleic acids
Polymers, biological studies
Polyoxyalkylenes, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymer-based microparticulate and **nanoparticulate** drug delivery systems)

IT Protamines
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sulfates; polymer-based microparticulate and **nanoparticulate** drug delivery systems)

IT 9000-69-5, Pectin
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(Low esterified; polymer-based microparticulate and **nanoparticulate** drug delivery systems)

IT 306-67-2, Spermine hydrochloride 7647-14-5, Sodium chloride, biological studies 7757-82-6, Sodium sulfate, biological studies 7758-29-4, Pentasodium tripolyphosphate **9002-98-6D**, epichlorhydrin-modified 9005-22-5, Cellulose sulfate sodium salt 9005-38-3, Sodium Alginate 9007-28-7, Chondroitin sulfate 10043-52-4, Calcium chloride, biological studies 11114-20-8, κ Carrageenan 24991-23-9 25513-46-6, Polyglutamic acid 26336-38-9, Polyvinylamine 26590-05-6, Acrylamide diallyldimethyl ammonium chloride copolymer 26658-46-8 37317-99-0, Dextran polyaldehyde 55295-98-2, Poly(methylene-co-guanidine) hydrochloride 84563-76-8, Protasan HV 106392-12-5, Pluronic F68 187888-07-9, Endostatin
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymer-based microparticulate and **nanoparticulate** drug delivery systems)

L212 ANSWER 18 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:538885 Document No. 141:226748 Ozone **etching** of a highly asymmetric triblock copolymer with a majority polydiene component. Mykhaylyk, Tetyana A.; Collins, Stephen; Jani, Chintan; Hamley, Ian W. (Department of Chemistry, University of Leeds, Leeds, LS2 9JT, UK). European Polymer Journal, 40(8), 1715-1721 (English) 2004. CODEN: EUPJAG. ISSN: 0014-3057. Publisher: Elsevier Science B.V..

AB The ozone **etching** of **thin** films of a com. polystyrene-polyisoprene-polystyrene (PS-PI-PS) triblock **copolymer** (**Vector** 4111) was studied using atomic force microscopy (AFM) and ellipsometry. The major phase of the copolymer consists of PI (82 weight%) and the copolymer forms a cylindrical structure upon annealing. Moderate ozone doses (1.4% wt/wt) were used to **etch** the copolymer. This revealed two

stages of the ozonation: rapid **etching** of the PI fragments followed by slow compacting of the remaining PS cylinders. Under certain conditions ozone treatment results in the formation of nanosized grooves in a PS matrix which is suitable for lithog. processes.

CC 39-12 (Synthetic Elastomers and Natural Rubber)

ST ozone **etching** isoprene styrene triblock rubber

IT Isoprene-styrene rubber
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(block, triblock, Vector 4111; ozone **etching** of isoprene-styrene triblock rubber with majority polydiene component)

IT **Etching**
Polymer morphology
Porosity
(ozone **etching** of isoprene-styrene triblock rubber with majority polydiene component)

IT 700836-36-8
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PYP (Physical process); PROC (Process)
(isoprene-styrene rubber, Vector 4111; ozone **etching** of isoprene-styrene triblock rubber with majority polydiene component)

IT 10028-15-6, Ozone, uses
RL: NUU (Other use, unclassified); USES (Uses)
(ozone **etching** of isoprene-styrene triblock rubber with majority polydiene component)

L212 ANSWER 19 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

2004:526387 Document No. 141:400627 Microfabricated **silicon microneedles** for nonviral cutaneous gene delivery. Chabri, F.; Bouris, K.; Jones, T.; Barrow, D.; Hann, A.; Allender, C.; Brain, K.; Birchall, J. (Welsh School of Pharmacy, Cardiff University, Cardiff, UK). British Journal of Dermatology, 150(5), 869-877 (English) 2004. CODEN: BJDEAZ. ISSN: 0007-0963. Publisher: Blackwell Publishing Ltd..

AB The skin represents an accessible somatic tissue for therapeutic gene transfer. The superficial lipophilic **layer** of the skin, the stratum corneum, however, constitutes a major obstacle to the cutaneous delivery of charged macromols. such as DNA. To determine whether **silicon**-based **microneedles**, microfabricated via a novel isotropic **etching**/BOSCH reaction process, could generate microchannels in the skin of sufficient dimensions to facilitate access of lipid: polycation: pDNA (LPD) nonviral gene therapy **vectors**. SEM was used to visualize the microconduits created in **heat**-separated human epidermal **sheets** after application of the

microneedles. Following confirmation of particle size and particle surface charge by photon correlation spectroscopy and microelectrophoresis, resp., the diffusion of fluorescent polystyrene **nanospheres** and LPD complexes through **heat**-separated human epidermal **sheets** was determined in vitro using a Franz-type diffusion cell. In-vitro cell culture with quantification by flow cytometry was used to determine gene expression in human keratinocytes (HaCaT cells). The diffusion of 100 **nm** diameter fluorescent polystyrene **nanospheres**, used as a readily quantifiable predictive model for LPD complexes, through epidermal **sheets** was significantly enhanced following membrane treatment with **microneedles.** The delivery of LPD complexes either into or through the membrane microchannels was also demonstrated. In both cases considerable interaction between the particles and the epidermal **sheet** was observed In-vitro cell culture was used to confirm that LPD complexes mediated efficient reporter gene expression in human keratinocytes in culture when formulated at the appropriate surface charge. These studies demonstrate the utility of **silicon microneedles** in cutaneous gene delivery.

CC 63-5 (Pharmaceuticals)
Section cross-reference(s): 3

ST **silicon microneedle** nonviral skin gene delivery

IT Skin
(keratinocyte; microfabricated **silicon microneedles** for nonviral cutaneous gene delivery)

IT Drug delivery systems
Genetic **vectors**
Human
Skin
(microfabricated **silicon microneedles** for nonviral cutaneous gene delivery)

IT DNA
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(microfabricated **silicon microneedles** for nonviral cutaneous gene delivery)

IT Needles (tools)
(**microneedles**; microfabricated **silicon microneedles** for nonviral cutaneous gene delivery)

IT 7440-21-3, **Silicon**, biological studies
RL: DEV (Device component use); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(microfabricated **silicon microneedles** for nonviral cutaneous gene delivery)

L212 ANSWER 20 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:490269 Document No. 141:42964 Engineering of material surfaces with **functional** particles. Shastri, Venkatram P.; Chen,

I-Wei; Choi, Hoon; Lipski, Anna Marie (USA). U.S. Pat. Appl. Publ. US 2004115239 A1 20040617, 22 pp., Cont.-in-part of U.S. Ser. No. 427,242. (English). CODEN: USXXCO. APPLICATION: US 2003-668484 20030922. PRIORITY: US 2002-2002/PV41187U 20020920; US 2003-2003/427242 20030501.

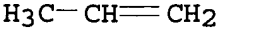
AB The invention provides a device having a surface and a **functional** layer associated with the surface, where the **functional** layer includes particles having a structure substituted with a **functional group**, where the **functional group** is adapted to modify a property of the device, the device is sufficiently biocompatible for application to a multicellular **organism** and the particles have an average diameter of about 5 **nm** to about 10 μ. A mono-dispersed, **nanoparticulate** silica colloid was prepared, and the surface of the colloidal particles was modified to bear amine **groups** by reacting the colloid with a silane coupling agent, aminopropyltriethoxysilane. The obtained **functionalized** silica **nanoparticles** were deposited onto the cleaned stainless steel/titanium foil.

IT **9003-07-0**, Polypropylene **9011-14-7**, Poly(methylmethacrylate)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(medical device having **surface** and **functional layer** associated with the surface)

RN 9003-07-0 HCAPLUS
CN 1-Propene, homopolymer (9CI) (CA INDEX NAME)

CM 1

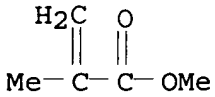
CRN 115-07-1
CMF C3 H6



RN 9011-14-7 HCAPLUS
CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 80-62-6
CMF C5 H8 O2



IC ICM A61F002-00
INCL 424423000
CC 63-7 (Pharmaceuticals)
ST biomaterial **surface functional layer**; silica **nanoparticle** aminopropyltriethoxysilane medical device **functional** layer
IT Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydroxy acid-based; medical device having **surface** and **functional layer** associated with the surface)
IT Prosthetic materials and Prosthetics
(implants; medical device having **surface** and **functional layer** associated with the surface)
IT Adenoviral **vectors**
Ceramics
Coils
Cylinders
Drug delivery systems
Filaments
Foils
Gels
Genetic **vectors**
Glass ceramics
Human
Hydrogels
Nanoparticles
Pipes and Tubes
Semiconductor materials
Spheres
(medical device having **surface** and **functional layer** associated with the surface)
IT Alloys, biological studies
Bone morphogenetic proteins
Carbides
Carbonaceous materials (technological products)
Ferroalloys
Fibers
Fluoropolymers, biological studies
Glass, biological studies
Growth factors, animal
Hepatocyte growth factor
Heregulins

Metals, biological studies
Nitrides
Oligonucleotides
Oxides (inorganic), biological studies
Peptides, biological studies
Platelet-derived growth factors
Polyanilines
Polyesters, biological studies
Polymers, biological studies
Polynucleotides
Polyoxymethylenes, biological studies
Polysulfones, biological studies
Polyurethanes, biological studies
Proteins
Rare earth oxides
Silicone rubber, biological studies
Transition metal oxides
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(medical device having **surface** and **functional layer** associated with the surface)

IT Polyethers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ortho ester **group**-containing; medical device having **surface** and **functional layer** associated with the surface)

IT Polyethers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyester-; medical device having **surface** and **functional layer** associated with the surface)

IT Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polyether-; medical device having **surface** and **functional layer** associated with the surface)

IT Lactones
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**polymers**; medical device having **surface** and **functional layer** associated with the surface)

IT Transforming growth factors
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(β-; medical device having **surface** and **functional layer** associated with the surface)

IT 919-30-2DP, Aminopropyltriethoxysilane, reaction products with silica 7631-86-9DP, Silica, reaction products with aminopropyltriethoxysilane
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(medical device having **surface** and **functional layer** associated with the surface)

IT 471-34-1, Calcium carbonate, biological studies 1302-93-8, Mullite 1309-37-1, Ferric oxide, biological studies 1309-48-4, Magnesia, biological studies 1314-23-4, Zirconia, biological studies 1314-36-9, Yttrium oxide, biological studies 1344-28-1, Alumina, biological studies 1344-95-2, Calcium silicate 1345-25-1, Ferrous oxide, biological studies 7429-90-5, **Aluminum**, biological studies 7440-02-0, Nickel, biological studies 7440-22-4, Silver, biological studies 7440-32-6, Titanium, biological studies 7440-48-4, Cobalt, biological studies 7440-57-5, Gold, biological studies 7631-86-9, Silica, biological studies 9002-81-7, Poly(oxymethylene) 9002-84-0, Poly(tetrafluoroethylene) 9002-88-4, Polyethylene **9003-07-0**, Polypropylene 9003-53-6, Polystyrene **9011-14-7**, Poly(methylmethacrylate) 9033-83-4, Poly(phenylene) 9061-61-4, Nerve growth factor 10103-46-5, Calcium phosphate 12597-68-1, Stainless steel, biological studies 24937-79-9 24980-41-4, Poly(ε-caprolactone) 25233-34-5, Poly(thiophene) 26009-03-0, Polyglycolic acid 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26100-51-6, Polylactic acid 26124-68-5, Polyglycolic acid 30604-81-0, Poly(pyrrole) 31621-87-1, Poly(dioxanone) 61912-98-9, Insulin-like growth factor 62229-50-9, Epidermal growth factor 106096-92-8, Acidic fibroblast growth factor 106096-93-9, Basic fibroblast growth factor 127464-60-2, Vascular endothelial growth factor
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(medical device having **surface** and **functional layer** associated with the surface)

L212 ANSWER 21 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:395705 Document No. 142:100056 Polymeric **nanoparticles** for drug and gene delivery. Kumar, M. N. V. Ravi; Sameti, M.; Kneuer, C.; Lamprecht, A.; Lehr, C.-M. (Saarland University, Saarbarucken, Germany). Encyclopedia of Nanoscience and Nanotechnology, Volume 9, 1-19. Editor(s): Nalwa, Hari Singh. American Scientific Publishers: Stevenson Ranch, Calif. ISBN: 1-58883-001-2 (English) 2004. CODEN: 69FJQ3.
AB A review discusses the preparation techniques, characterization, and some reported **nanoparticulate** delivery systems and their application.
CC 63-0 (Pharmaceuticals)
ST review polymer **nanoparticle** drug gene delivery
IT Drug delivery systems
(**nanoparticles**; polymeric **nanoparticles** for drug and gene delivery)
IT Genetic **vectors**
(**polymeric nanoparticles** for drug and gene delivery)
IT Polymers, biological studies

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymeric **nanoparticles** for drug and gene delivery)

L212 ANSWER 22 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:367955 Document No. 141:355135 **Polymer**-coated polyethylenimine/DNA complexes designed for triggered activation by intracellular reduction. Carlisle, Robert C.; Etrych, Tomas; Briggs, Simon S.; Preece, Jon A.; Ulbrich, Karel; Seymour, Leonard W. (Department of Clinical Pharmacology, Oxford University, Oxford, OX2 6HE, UK). Journal of Gene Medicine, 6(3), 337-344 (English) 2004. CODEN: JGMEFG. ISSN: 1099-498X. Publisher: John Wiley & Sons Ltd..

AB Site-specific gene delivery requires **vectors** that combine stability in the delivery phase with substantial biol. activity within target cells. The use of biol. trigger mechanisms provides one promising means to achieve this, and here we report a transfection trigger mechanism based on intracellular reduction Plasmid DNA was condensed with thiolated polyethylenimine (PEI-SH) and the resulting **nanoparticles surface-coated** using thiol-reactive poly[N-(2-hydroxypropyl)methacrylamide] (PHPMA) with 2-pyridyldisulfanyl or maleimide **groups**, forming reducible disulfide-linked or stable thioether-linked coatings, resp. Both sets of **polymer**-coated complexes had similar size and were stable to a 250-fold excess of the polyanion poly(aspartic acid) (PAA). Reduction with dithiothreitol (DTT) allowed complete release of DNA from disulfide-linked coated complexes, whereas complexes with thioether-linked coating remained stable. Disulfide-linked complexes showed 40-100-fold higher transfection activity than thioether-linked ones, and activity was selectively further enhanced by boosting intracellular glutathione using glutathione monoethyl ester or decreased using buthionine sulfoximine. The chloroquine- and serum-independent transfection activity of disulfide-linked coated complexes suggests this system may provide a viable trigger mechanism to enable site-specific transfection in complex biol. settings. Linkage of hydrophilic **polymer** coating to PEI/DNA complexes via reducible disulfide bonds offers a means of fulfilling the contradictory requirements for extracellular stability and intracellular activity.

CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 3

IT DNA
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(complexes; **polymer**-coated polyethylenimine/DNA complexes designed for triggered activation by intracellular reduction)

IT Genetic **vectors**
Polydispersity

Transformation, genetic
(**polymer**-coated polyethylenimine/DNA complexes designed for triggered activation by intracellular reduction)

IT 55750-62-4DP, reaction products with hydroxypropylmethacrylamide-methacryloylamidohexanoate **polymers** 68181-17-9DP, reaction products with hydroxypropylmethacrylamide-methacryloylamidohexanoate **polymers**
RL: PRP (Properties); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(**polymer**-coated polyethylenimine/DNA complexes designed for triggered activation by intracellular reduction)

IT 26913-06-4, Polyethylenimine 64129-75-5D, pyridylsulfanyl/maleimide **functionalized**
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(**polymer**-coated polyethylenimine/DNA complexes designed for triggered activation by intracellular reduction)

IT 4781-83-3, 2-Iminothiolane hydrochloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(**polymer**-coated polyethylenimine/DNA complexes designed for triggered activation by intracellular reduction)

L212 ANSWER 23 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2004:80180 Document No. 140:133849 Particles **coated** on the **surface** with hyaluronan or one of its derivatives, and their use as biological **vectors.** Dellacherie, Edith; Leonard, Michele; Gref, Ruxandra; Netter, Patrick; Payan, Elisabeth (Centre National de la Recherche Scientifique CNRS, Fr.). Fr. Demande FR 2842737 A1 20040130, 20 pp. (French). CODEN: FRXXBL. APPLICATION: FR 2002-9436 20020725.

AB Particles with cores comprising an **organosol.** biodegradable **polymer** coated at least partially on the surface, with hyaluronan or one of its derives. are used as biol. **vectors** for active materials. Polylactide particles were coated with C18 alkyl derivs. of sodium hyaluronate. Effects of the particles on the proliferation of cultured chondrocytes was studied.

IC ICM A61K009-62
ICS C08J007-04; B01J013-12; C08L005-08

CC 63-6 (Pharmaceuticals)

ST particle **coating surface** hyaluronan deriv biol **vector**

IT **Polymers**, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biodegradable; particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT Drug delivery systems
(immunotoxins; particles **coated** on **surface**

with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT Drug delivery systems
(microparticles; particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT Drug delivery systems
(**nanoparticles**; particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT Polyethers, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(ortho ester **group**-containing; particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT Analgesics
Anesthetics
Anti-inflammatory agents
Antibiotics
Antiviral agents
Chemotherapy
Fungicides
Immunomodulators
Immunosuppressants
Parasiticides
Vaccines
(particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT **Acrylic polymers**, biological studies
Antigens
Carbohydrates, biological studies
Enzymes, biological studies
Glycosaminoglycans, biological studies
Hormones, animal, biological studies
Lipids, biological studies
Nucleic acids
Polyanhydrides
Polycarbonates, biological studies
Polyesters, biological studies
Polyphosphazenes
Polysaccharides, biological studies
Polysiloxanes, biological studies
Proteins
Receptors
Steroids, biological studies
Vitamins
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(particles **coated** on **surface** with hyaluronan

or one of its derivs., and their use as biol. **vectors**)

IT Polyamides, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(poly(amino acids); particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT 9067-32-7DP, Sodium hyaluronate, C18 alkyl derivs.
RL: BUU (Biological use, unclassified); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT 112-89-0 9067-32-7, Sodium hyaluronate
RL: RCT (Reactant); RACT (Reactant or reagent)
(particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

IT 9004-61-9, Hyaluronan 24980-41-4, Poly(ε-caprolactone) 25248-42-4, Poly[oxy(1-oxo-1,6-hexanediyl)] 26009-03-0, Poly(glycolic acid) 26023-30-3, Poly[oxy(1-methyl-2-oxo-1,2-ethanediyl)] 26063-00-3, Polyhydroxybutyrate 26100-51-6, Poly(lactic acid) 26124-68-5, Poly(glycolic acid) 26744-04-7 78644-42-5, Poly(malic acid) 148184-12-7
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(particles **coated** on **surface** with hyaluronan or one of its derivs., and their use as biol. **vectors**)

L212 ANSWER 24 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:950799 Document No. 140:19843 Polymer compositions and processes for inhibiting gene expression using polynucleotides. Lewis, David L.; Rozema, David B.; Wakefield, Darren; Herweijer, Hans; Wolff, Jon A.; Hagstrom, James E. (Mirus Corporation, USA). PCT Int. Appl. WO 2003099228 A2 20031204, 37 pp. DESIGNATED STATES: W: JP; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US16666 20030528. PRIORITY: US 2002-2002/PV38399U 20020528; US 2003-2003/446252 20030528.

AB Compns. are provided for delivery of polynucleotides to cells for the purpose of inhibiting gene expression. Antisense polynucleotide-containing complexes are described. The salt and serum stability and small size of the complexes permits delivery to cells in vitro and in vivo. E.g., polymaleic anhydride based polyanions were prepared such as galactosamine and histamine substituted polymers. Also PMO:oligodeoxynucleotide/polylysine derivative particles delivery to liver following i.v. administration was demonstrated.

IT **9002-98-6**, Polyethylenimine
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymer compns. and processes for inhibiting gene expression using polynucleotides)

RN 9002-98-6 HCAPLUS
CN Aziridine, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 151-56-4
CMF C2 H5 N

IC ICM A61K
CC 63-6 (Pharmaceuticals)
IT Drug delivery systems
(**nanoparticles**; polymer compns. and processes for inhibiting gene expression using polynucleotides)
IT Genetic **vectors**
Polyelectrolytes
Zeta potential
(**polymer** compns. and processes for inhibiting gene expression using polynucleotides)
IT 29132-58-9, Acrylic acid-**maleic acid** **copolymer**
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymer compns. and processes for inhibiting gene expression using polynucleotides)
IT 51-45-6DP, Histamine, reaction products with maleic anhydride-Me vinyl ether copolymer 110-15-6DP, Succinic acid, reaction products with polylysine 6318-23-6DP, 1-Amino-1-deoxy-β-D-galactose, reaction products with maleic anhydride copolymers 9011-16-9DP, Maleic anhydridemethyl vinyl ether copolymer, reaction products with histamine and galactosamine 25104-18-1DP, Polylysine, succinylated 29132-58-9DP, Acrylic acid-**maleic acid** **copolymer**, reaction products with galactosamine 38000-06-5DP, Polylysine, succinylated
RL: SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(polymer compns. and processes for inhibiting gene expression using polynucleotides)
IT **9002-98-6**, Polyethylenimine 25104-18-1, Polylysine 30551-89-4, Polyallylamine 38000-06-5, Polylysine 629649-84-9, MC 307 629652-74-0, MC 305 (polymer) 629653-08-3, MC 327 (polymer) 629653-13-0, MC 350 629653-13-0D, MC 350, carboxydimethylmaleic derivs. 629653-53-8, MC 220 629653-53-8D, MC 220, carboxydimethylmaleic derivs. 629653-56-1, MC 301

(polymer)
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(polymer compns. and processes for inhibiting gene expression using polynucleotides)

L212 ANSWER 25 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:311685 Document No. 139:324145 A covalently attached **film** based on poly(methacrylic acid)-capped Fe3O4 **nanoparticles**. Zhang, Hao; Wang, Ruibing; Zhang, Gang; Yang, Bai (College of Chemistry, Key Laboratory of Supramolecular Structure and Materials, Jilin University, Changchun, 130023, Peop. Rep. China). Thin Solid Films, 429(1-2), 167-173 (English) 2003. CODEN: THSFAP. ISSN: 0040-6090. Publisher: Elsevier Science B.V..
AB Poly(methacrylic acid) (PMAA)-capped Fe3O4 **nanoparticles** were prepared by copptn. with PMAA in aqueous solution Fe3O4 **nanoparticles** were further assembled with 2-nitro-N-methyl-4-diazonium-formaldehyde resin (NDR) to form a photosensitive precursor **film**, by virtue of the coulombic attraction between the neg. charged PMAA surface capping agent and the cationic polyelectrolyte of NDR. Covalent bonds were formed under UV irradiation As a result of polymer capping of the **nanoparticles** and covalent linkage, a highly stable **multilayer** structure was formed. Transmission electron micrographs and selected area electron diffraction **pattern** revealed the Fe3O4 **nanoparticles** to be approx. 8 **nm** in diameter with a cubic phase structure. XPS provided evidence for the presence of Fe3O4 **nanoparticles** and NDR within the ultrathin **films**. The UV-visible spectroscopy and atomic force microscopy measurements supported the improvement of the stability of the **film**, which became impervious to polar solvents when the linkages between the **nanoparticles** and polymer changed from ionic bonds to covalent bonds.
CC 37-6 (Plastics Manufacture and Processing)
ST **polymethacrylic** acid **iron** oxide nanocomposite magnetic **film**; photocrosslinking **polymethacrylic** acid **iron** oxide **multilayer** magnetic **film**; diazonium phenolic **multilayer** magnetic **film** polymethacrylic acid
IT Magnetic **films**
Nanoparticles
(covalently attached **multilayer films** based on poly(methacrylic acid)-capped Fe3O4 **nanoparticles**)
IT Phenolic resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(diazonium derivs., **multilayered** assemblies; covalently attached **multilayer films** based on poly(methacrylic acid)-capped Fe3O4 **nanoparticles**)
IT Crosslinking

(photochem.; covalently attached **multilayer films** based on poly(methacrylic acid)-capped Fe3O4 **nanoparticles**)

IT 1317-61-9, Iron oxide (Fe3O4), properties
RL: MOA (Modifier or additive use); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(covalently attached **multilayer films** based on poly(methacrylic acid)-capped Fe3O4 **nanoparticles**)

IT 25087-26-7, Poly(methacrylic acid)
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(covalently attached **multilayer films** based on poly(methacrylic acid)-capped Fe3O4 **nanoparticles**)

IT 245511-08-4
RL: TEM (Technical or engineered material use); USES (Uses)
(**multilayered** assemblies; covalently attached **multilayer films** based on poly(methacrylic acid)-capped Fe3O4 **nanoparticles**)

L212 ANSWER 26 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2003:186781 Grafting of polymers onto carbon **nanofiber** surfaces and application to sensing materials. Tsubokawa, Norio; Chen, Jinhua; Wei, Gang; Mikuni, Manabu; Fujiki, Kazuhiro (Department of Material Science and Technology, Faculty of Engineering, Niigata University, Niigata, 950-2181, Japan). Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003, POLY-629. American Chemical Society: Washington, D. C. (English) 2003. CODEN: 69DSA4.

AB Copolymers containing **vinyl ferrocene** moieties were successfully grafted onto the surface of carbon **nano-fiber**, such as vapor grown carbon fiber and carbon **nanotube**, by ligand-exchange reaction of ferrocene moieties with polycondensed aromatic rings of carbon **nano-fiber** and carbon **nanotube** surfaces in the presence of aluminum chloride. In addition, by the reaction of terminal hydoxyl groups of polymers with carboxyl groups on the carbon **nano-fiber** surface, which were introduced by using ligand-exchange reaction of dicarboxy ferrocene, the corresponding polymer was grafted onto these surfaces. The gamma-ray radiation grafting of polymers onto the carbon **nano-fiber** surfaces was also investigated. The polymer-grafted carbon **nano-fibers** gave stable dispersions in solvents for the grafted polymer and dispersed uniformly in polymer matrixes to give carbon **nano-fiber**/polymer **nano-composite**. The elec. resistance of the nano-composite remarkably increased in various solvent vapors and returned to initial resistance when it was transferred into air.

L212 ANSWER 27 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:843644 Document No. 138:228691 The "in-plane" angular spin distribution in layered systems as obtained by 57Fe Mossbauer spectroscopy. Kuncser, V.; Keune, W.; Vopsaroiu, M.; Bissell, P. R. (Laboratorium fur Angewandte Physik, Gerhard-Mercator-Universitat Duisburg, Duisburg, D-47048, Germany). Nuclear Instruments & Methods in Physics Research, Section B: Beam Interactions with Materials and Atoms, 196(1-2), 135-147 (English) 2002. CODEN: NIMBEU. ISSN: 0168-583X. Publisher: Elsevier Science B.V..

AB A practical approach for in-plane angular spin distributions in layered systems, as obtained by Mossbauer spectroscopy, is discussed. The line intensity ratio R23 of a Mossbauer **pattern** is expressed vs. particular distribution parameters in unidirectional, step-shaped and ellipse-type models. The distribution parameters are deduced from exptl. spectra taken by rotating the sample in its own plane. Three-dimensional spin distributions with small out-of-plane components can be analyzed using the same method. The procedure is exemplified on 4 samples containing metallic **nano-particles.** The in-plane angular magnetic moment distributions derived with this method are compared with the results from bulk **vector** vibrating sample magnetometry to prove the accuracy of the described technique.

CC 73-7 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)
Section cross-reference(s): 77

ST Mossbauer spin distribution layered system iron sesquioxide **nanoparticle polymer**

IT **Polymers**, uses
RL: NUU (Other use, unclassified); USES (Uses)
(in-plane angular spin distribution from Mossbauer spectra in layered systems containing metallic **nanoparticles** in)

IT **Nanoparticles**
(iron and iron sesquioxide; in-plane angular spin distribution from Mossbauer spectra in layered systems containing)

IT 1309-37-1, Iron sesquioxide, properties
RL: PRP (Properties)
(**nanoparticles**; in-plane angular spin distribution from Mossbauer spectra in layered systems containing)

IT 7439-89-6, Iron, properties
RL: PRP (Properties)
(**nanoparticles**; in-plane angular spin distribution in layered systems as obtained by 57Fe Mossbauer spectroscopy)

L212 ANSWER 28 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:697411 Document No. 138:18727 Magneto-optical study of the magnetization reversal process of Fe **nanowires.** Schmitte, Till; Theis-Brohl, Katharina; Leiner, Vincent; Zabel, Hartmut;

Kirsch, Siegfried; Carl, Axel (Institut fur Experimentalphysik/Festkorperphysik, Ruhr-Universitat Bochum, Bochum, D44780, Germany). Journal of Physics: Condensed Matter, 14(32), 7525-7538 (English) 2002. CODEN: JCOMEL. ISSN: 0953-8984. Publisher: Institute of Physics Publishing.

AB The authors discuss results of magneto-optical Kerr effect (MOKE) measurements performed on a **thin** Fe **film** of 13 **nm thickness**, which was **patterned** into a periodic arrangement of **nanowires** by optical interference lithog. The resulting array of **nanowires** consist of stripes having a **width** of 150 **nm** and a periodicity of 300 **nm**. MOKE hysteresis loops are measured within magnetic fields which are aligned in different directions, both parallel and perpendicular with respect to the direction of the **nanowires** as well as for various angles in between. A particular arrangement of the longitudinal Kerr effect measurement allows the authors to identify both the longitudinal and the transverse component of the magnetization of Fe **nanowires**. From this both the angle and the magnitude of the magnetization **vector** M . are derived. For a nonparallel alignment of the **nanowires** with respect to the direction of the external magnetic field, the hysteresis loops consist of a plateau region with two coercive fields Hc1 and Hc2, which is discussed as resulting from an anisotropic pinning behavior of magnetic domains in directions along and perpendicular to the **nanowires**.

CC 77-1 (Magnetic Phenomena)

ST iron **nanowire** magnetization reversal magnetooptical Kerr measurement

IT Wires
(magnetic, **nanowire**; magneto-optical study of the magnetization reversal process of Fe **nanowires**)

IT **Nanowires**
(magnetic; magneto-optical study of the magnetization reversal process of Fe **nanowires**)

IT Coercive force (magnetic)
Kerr effect (magnetooptical)
Magnetic hysteresis
Magnetization
Magnetization reversal
Surface structure
(magneto-optical study of the magnetization reversal process of Fe **nanowires**)

IT Magnetic domain
(pinning; magneto-optical study of the magnetization reversal process of Fe **nanowires**)

IT Magnetic materials
(wire, **nanowire**; magneto-optical study of the magnetization reversal process of Fe **nanowires**)

IT 7439-89-6, Iron, properties
RL: PRP (Properties)
(magneto-optical study of the magnetization reversal process of Fe **nanowires**)

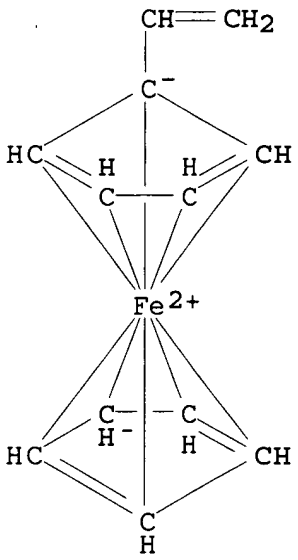
L212 ANSWER 29 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:674869 Document No. 138:95290 **Nanoparticles** - the next big **thing**?. Kirchweger, Gina (USA). Molecular Therapy, 6(3), 301-302 (English) 2002. CODEN: MTOHCK. ISSN: 1525-0016. Publisher: Elsevier Science.
AB A review discussion. The potential of the tiny, tightly packed DNA **nanoparticles** as substitute for viral vectors is described. A method to synthesize large libraries of biodegradable cationic polymers and a high-throughput screening assay to identify new synthetic vector families with the required feature, including the polymers have to be able to condense or package DNA to small sizes to be taken up by cells and stabilize DNA before and after cellular uptake, was developed. **Nanoparticles** could be designed into perfect messengers, delivering their genetic payload with precision. **Nanoparticles** specifically target angiogenic blood vessels in mice and choke off the blood supply of tumors without influencing the normal blood vessels or any other tissues. A mutant form of RAF1 that inhibits normal RAF1 activity into cationic lipid-based **nanoparticles** decorated with αvβ3 ligand was developed.
CC 63-0 (Pharmaceuticals)
ST review **nanoparticle** synthetic viral **vector** **polymer** DNA
IT Gene therapy
Genetic vectors
(**nanoparticles** in gene delivery)
IT Drug delivery systems
(**nanoparticles**; **nanoparticles** in gene delivery)

L212 ANSWER 30 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:539099 Document No. 137:206871 Patterning of Vinylferrocene on H-Si(100) via Self-Directed Growth of Molecular Lines and STM-Induced Decomposition. Kruse, Peter; Johnson, Erin R.; DiLabio, Gino A.; Wolkow, Robert A. (Steacie Institute for Molecular Sciences, National Research Council of Canada, Ottawa, ON, K1A 0R6, Can.). Nano Letters, 2(8), 807-810 (English) 2002. CODEN: NALEFD. ISSN: 1530-6984. Publisher: American Chemical Society.
AB Vinylferrocene was used to grow ordered mol. lines on the H-Si(100) surface via a self-directed growth process. High-resolution STM images reveal a zigzag structure within the lines that results from the relief of steric crowding of the mols. Scanning with more than -4.0 V of sample bias reproducibly destroys the mols., leaving smaller

decomposition products in their place. The energetics of both adsorption and decomposition of the mols. were examined via DFT calcns. We propose to utilize these metal-containing lines as prepatterned catalysts for processes such as carbon **nanotube** growth.

IT **1271-51-8**, Vinylferrocene
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(patterning of vinylferrocene mol. lines on Si surface via STM induced adsorption and decomposition)

RN 1271-51-8 HCAPLUS
CN Ferrocene, ethenyl- (9CI) (CA INDEX NAME)



CC 66-3 (Surface Chemistry and Colloids)

IT **1271-51-8**, Vinylferrocene
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(patterning of vinylferrocene mol. lines on Si surface via STM induced adsorption and decomposition)

L212 ANSWER 31 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2002:537001 Document No. 137:233358 Structure and thermoelasticity of irradiation grafted nano-inorganic particle filled polypropylene composites in the solid state. Privalko, V. P.; Karaman, V. M.; Privalko, E. G.; Walter, R.; Friedrich, K.; Zhang, M. Q.; Rong, M. Z. (Institute of Macromolecular Chemistry, National Academy of Sciences of Ukraine, Kiev, 02160, Ukraine). Journal of Macromolecular Science, Physics, B41(3), 487-505 (English) 2002.

CODEN: JMAPBR. ISSN: 0022-2348. Publisher: Marcel Dekker, Inc..

AB **Nanoparticles** of the standard pyrogenic Aerosil 1380 pre-grafted by γ-irradiation with styrene were melt-compounded with the general purpose isotactic polypropylene **homopolymer** (PP) to prepare nanocomposites with filler volume contents up to 4.68%. Solid-state properties of the nanocomposites were characterized by wide-angle x-ray scattering (WAXS), small-angle x-ray scattering (SAXS), differential scanning calorimetry, and stretching calorimetry. The crystalline PP lamellae remained unchanged, irresp. of the filler content. However, a well-resolved SAXS reflection seen for PP-0 was not detectable on the SAXS curves of nanocomposites with low filler contents due to the sharp increase of SAXS intensity in the same range of scattering **vectors.** These results implied a significant increase in structural heterogeneity due to the appearance of new and strongly scattering entities (presumably **polymer-nanoparticle** interfaces and microvoids) with a broad distribution of sizes. In contrast to the basically composition-invariant WAXS crystallinity for nanocomposites, higher the filler volume content, the calorimetric crystallinity for the **polymer** matrix tended to increase, while the apparent densities of the **polymer** matrix decreased. The Young's moduli of nanocomposites were considerably in excess of, whereas **thermal** expansion, limiting strains for elastic behavior, and breaking strains, were much below the reasonable theor. predictions. These exptl. observations were explained by a model assuming that a non-negligible portion of PP chains in the melt state would be anchored by each end to the available absorption-active sites of two different neighboring **nanoparticles.** The restricted chain mobility in these sites should facilitate the crystal nucleation in the undercooled PP melt; hence, the same PP chain might be involved in two nucleation events at the surfaces of two adjacent **nanoparticles.** Presumably, subsequent crystallization in the undercooled melts of both neat PP and nanocomposites would proceed via the usual growth of chain-folded lamellae (therefore, the WAXS **patterns** should be similar). However, the tie-chains in the interlamellar space of the neat PP are expected to remain in the relaxed, coiled state, whereas in the latter case, a simultaneous lamellar growth at fixed positions of the same PP chains on adjacent **nanoparticles** would end up with not only a considerable extension of tie-chains but also with a concomitant fall in the local packing d. in the interlamellar space.

CC 37-6 (Plastics Manufacture and Processing)

IT **Thermal** expansion
(coefficient; irradiation grafted nano-inorg. particle filled polypropylene composites in the solid state)

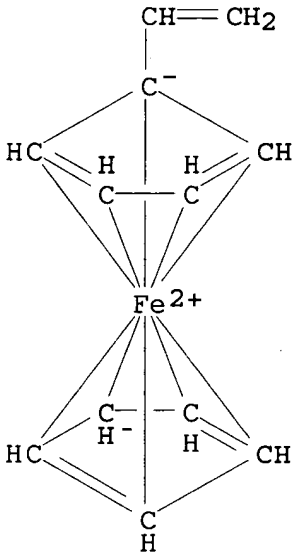
IT **Polymer** chains
(dynamics; irradiation grafted nano-inorg. particle filled

polypropylene composites in the solid state)
IT Crystallinity
Fillers
Fusion enthalpy
Heat capacity
Nanocomposites
Simulation and Modeling, physicochemical
Strain
Thermoelasticity
Work (mechanical)
Young's modulus
(irradiation grafted nano-inorg. particle filled polypropylene composites in the solid state)
IT **Polymer** chains
(packing; irradiation grafted nano-inorg. particle filled polypropylene composites in the solid state)
IT 110866-50-7
RL: MOA (Modifier or additive use); USES (Uses)
(filler, **nanoparticles**; irradiation grafted nano-inorg. particle filled polypropylene composites in the solid state)

L212 ANSWER 32 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2001:510737 Document No. 135:233748 Exciton-Mediated Hydrosilylation on Photoluminescent Nanocrystalline Silicon. Stewart, Michael P.; Buriak, Jillian M. (Department of Chemistry, Purdue University, West Lafayette, IN, 47907-1393, USA). Journal of the American Chemical Society, 123(32), 7821-7830 (English) 2001. CODEN: JACSAT. ISSN: 0002-7863. Publisher: American Chemical Society.
AB A novel white light-promoted reaction using photoluminescent nanocryst. silicon enables the hydrosilylation of alkenes and alkynes, providing stabilization of the porous silicon without significant loss of the photoemissive qualities of the material. Photopatterning and lithog. fabrication of isolated porous silicon structures are made possible. Expts. and observations are presented which indicate that the light promoted hydrosilylation reaction is unique to photoluminescent silicon, and does not function on nonemissive material. Hydrosilylation using a reactive center generated from a surface-localized exciton is proposed based upon exptl. evidence, explaining the photoluminescence requirement. Indirect excitons formed by light absorption mediate the formation of localized electrophilic surface states which are attacked by incoming alkene or alkyne nucleophiles. Supra-band gap charge carriers have sufficient energy to react with nucleophilic alkenes and alkynes, thereupon causing Si-C bond formation, an irreversible event. The light-promoted hydrosilylation reaction is quenched by reagents that quench the light emission from porous silicon, via both charge transfer and energy transfer pathways.
IT **1271-51-8**, Vinylferrocene

RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(quencher; photolytic hydrosilylation of alkenes and alkynes on hydride-terminated porous silica quenched by)

RN 1271-51-8 HCAPLUS
CN Ferrocene, ethenyl- (9CI) (CA INDEX NAME)



CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 100-42-5, Styrene, reactions 111-78-4, 1,5-Cyclooctadiene 112-41-4, 1-Dodecene 536-74-3, Phenylacetylene 592-41-6, 1-Hexene, reactions 627-19-0, 1-Pentyne 629-05-0, 1-Octyne 765-03-7, 1-Dodecyne 766-97-2, 4-Methylphenylacetylene 871-84-1, 1,7-Octadiyne 872-05-9, 1-Decene 873-73-4, 4-Chlorophenylacetylene 6089-09-4, 4-Pentynoic acid 14918-21-9, 5-Hexynenitrile 21652-58-4, 1H,1H,2H-Perfluorodecene 25291-17-2 26256-87-1, Tri(ethylene glycol) methyl vinyl ether 99685-96-8, **Fullerene**
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(exciton-mediated hydrosilylation of alkenes and alkynes on hydride-terminated porous silica and formation of C-Si bonds in relation to photolithog.)

IT 102-54-5, Ferrocene 781-43-1, 9,10-Dimethylanthracene **1271-51-8**, Vinylferrocene 1273-89-8, Ethylferrocene 1287-13-4, Ruthenocene 1499-10-1, 9,10-Diphenylanthracene

84821-53-4, Decamethylruthenocene
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(quencher; photolytic hydrosilylation of alkenes and alkynes on hydride-terminated porous silica quenched by)

L212 ANSWER 33 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2001:64224 Document No. 134:132894 **Nanoparticle**-based permanent treatments for textiles using covalent-bonded polymer nanobeads containing releasing agent. Soane, David S.; Offord, David A.; Ware, William, Jr.; Linford, Matthew R.; Green, Eric; Lau, Ryan (Avantgarb, LLC, USA). PCT Int. Appl. WO 2001006054 A1 20010125, 25 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US40428 20000719. PRIORITY: US 1999-PV144485 19990719; US 1999-PV144615 19990720; US 1999-PV153392 19990910; US 2000-PV176946 20000118.

AB This invention is directed to prepns. useful for the permanent or substantially permanent treatment of textiles and other webs. More particularly, the prepns. of the invention comprise an agent or other **payload** surrounded by or contained within a synthetic, polymer shell or matrix that is reactive to webs, to give textile-reactive beads or matrixes. By "textile-reactive" is meant that the **payload** bead will form a chemical covalent bond with the fiber, yarn, fabric, textile, finished goods (including apparel), or other web or substrate to be treated. The polymer shell or polymer network of the **payload** **nanoparticle** has a surface that includes functional groups for binding or attachment to the fibers of the textiles or other webs (such as denim fabrics) to be treated, to provide permanent attachment of the **payload** to the textiles, therefor improving colorfastness and resistance to fading. Alternatively, the surface of the nanobead includes functional groups that can bind to a linker mol. that will in turn bind or attach the bead to the fiber. The **payload** is selected from the group consisting of bioactive agents, anti-biol. agents, drugs, pharmaceuticals, sun-block agents, dyes (such as an indigo unreactive dye), pigments, scents, fragrances, insect repellents, fire retardant or suppressant chems., **metallic** reflector colloids, magnetic particles, thermochromic materials, **heat**-absorbing or **heat** -releasing phase change agents, fabric softeners, zeolites, and activated carbon. The shell can be made by polymerizing a polymeric set

containing textile-reactive functional group and crosslinking agent.
IC ICM D06M023-12
ICS D06P001-22; D06P001-00
CC 40-9 (Textiles and Fibers)
Section cross-reference(s): 5, 37, 41, 63
ST textile treatment covalent bonding reactive **nanoparticle**; controlled release indigo encapsulated **nanoparticle** denim fabric; antimicrobial sunscreen drug dye fragrance controlled release fabric
IT Colloids
(**metallic** reflector, releasing agent; in textile treatment by covalent-bonded polymer nanobeads containing releasing agent)
IT Drug delivery systems
(**nanoparticles**, controlled-release; in textile treatment by covalent-bonded polymer nanobeads containing releasing agent)
IT Antimicrobial agents
Drugs
Fabric softeners
Fireproofing agents
Heat-sensitive materials
Insect repellents
Magnetic particles
Odor and Odorous substances
Pigments, nonbiological
Sunscreens
Thermochromic materials
(releasing agent; in textile treatment by covalent-bonded polymer nanobeads containing releasing agent)

L212 ANSWER 34 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:844501 Document No. 134:163388 Alkyne Metathesis with Simple Catalyst Systems: Efficient Synthesis of Conjugated Polymers Containing Vinyl Groups in Main or Side Chain. Brizius, Glen; Pschirer, Neil Gregory; Steffen, Winfried; Stitzer, Katherine; zur Loye, Hans-Conrad; Bunz, Uwe H. F. (Department of Chemistry and Biochemistry, The University of South Carolina, Columbia, SC, 29208, USA). Journal of the American Chemical Society, 122(50), 12435-12440 (English) 2000. CODEN: JACSAT. ISSN: 0002-7863. Publisher: American Chemical Society.
AB Conjugated polymers were prepared by acyclic diyne metathesis (ADIMET). These polymers are hybrids between poly(p-phenylene vinylene) and poly(p-phenylene ethynylene) (PPE) and contain phenylene, ethynylene, and vinylene groups (-.tplbond.-Ph-:-Ph-, PPVE). Simple in situ catalysts formed from Mo(CO)6 and 4-chlorophenol were used to metathesize the dipropynyl(tetraalkyl)stilbene monomers. The monomers were prepared

via a combination of Horner reactions and Heck-type couplings. The PPVEs form in high yield and have a defined structure, d.p. (Pn) of 30-220 **repeating units** (i.e. 60-450 benzene rings), and the presence of double bonds does not interfere with alkyne metathesis. The PPVEs were structurally characterized by x-ray diffraction and electron microscopy. The PPVEs show fibrillar and network-type morphol., and are of interest for applications in mol. electronics, e.g., as active **layers** in light-emitting diodes, plastic lasers, electrochem. cells, etc. Solid samples of PPVEs display powder x-ray diffraction **patterns** almost identical to those of the PPEs and assume similar doubly **lamellar** structure as the PPEs. The aggregation behavior of PPVEs was also studied. A monomer containing fluorene alkyl substituted with double bond-end functionalities and alkyne substituents underwent ADIMET to form a poly(2,7-fluorenylene ethynylene) carrying unsatd. side chains. In this case, the presence of unsatn. did not interfere with efficient alkyne metathesis.

CC 35-4 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 36

IT 325145-00-4P, 1-((1E,3E)-4-Phenylbuta-1,3-dienyl)-2,5-dioctyl-4-prop-1-ynylbenzene 325145-01-5P, 2-[(1E)-2-(2,5-Dioctyl-4-prop-1-ynylphenyl)vinyl]thiophene 325145-02-6P, 3-[(1E)-2-(2,5-Dioctyl-4-prop-1-ynylphenyl)vinyl]thiophene 325145-03-7P, 2-[(1E)-2-(2,5-Dioctyl-4-prop-1-ynylphenyl)vinyl]furan 325145-04-8P, 1-((1E)-2-Phenylvinyl)-2-prop-1-ynylbenzene 325145-05-9P, 4-((1E)-2-Phenylvinyl)-1-{2-[4-((1E)-2-phenylvinyl)-2,5-didodecylphenyl]ethynyl}-2,5-didodecylbenzene 325145-06-0P, 4-[2-(2,5-Dioctyl-4-vinylphenyl)ethynyl]-2,5-dioctyl-1-vinylbenzene 325145-07-1P, 2-[(1E)-2-(4-{2-[4-((1E)-2-(2-Furyl)vinyl)-2,5-dioctylphenyl]ethynyl}-2,5-dioctylphenyl)vinyl]furan 325145-08-2P, 4-((1E,3E)-4-Phenylbuta-1,3-dienyl)-1-{2-[4-((1E,3E)-4-phenylbuta-1,3-dienyl)-2,5-dioctylphenyl]ethynyl}-2,5-dioctylbenzene 325145-09-3P, 3-Vinyl-1-[2-(3-vinylphenyl)ethynyl]benzene 325145-10-6P, 3-[(1E)-2-(4-{2-[4-((1E)-2-(3-Thienyl)vinyl)-2,5-dioctylphenyl]ethynyl}-2,5-dioctylphenyl)vinyl]thiophene 325145-11-7P, 2-[(E)-2-(4-{2-[4-((1E)-2-(2-Thienyl)vinyl)-2,5-dioctylphenyl]ethynyl}-2,5-dioctylphenyl)vinyl]thiophene 325145-12-8P 325145-20-8P, 9,9-Di(S)-citronellyl-2,7-diiodofluorene 325150-92-3P, [(1E)-2-(2,5-Dimethyl-4-prop-1-ynylphenyl)**vinyl**]**ferrocene** 325150-94-5P, [(1E)2-(4-{2-[4-((1E)-2-Ferrocenylvinyl)-2,5-dimethylphenyl]ethynyl}-2,5-dimethylphenyl)**vinyl**]**ferrocene** 325151-15-3P, 4-((1E)-2-Phenylvinyl)-1-{2-[4-((1E)-2-phenylvinyl)-2,5-bis(2-ethylhexyl)phenyl]ethynyl}-2,5-bis(2-ethylhexyl)benzene
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(alkyne metathesis with Mo(CO)6-chlorophenol catalyst in preparation of phenylenevinylene-alkyne conjugated polymers and morphol. and

fluorescence of polymers)

L212 ANSWER 35 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:102589 Document No. 132:241848 Mucoadhesive DL-lactide/glycolide copolymer **nanospheres coated** with chitosan to improve oral delivery of elcatonin. Kawashima, Yoshiaki; Yamamoto, Hiromitsu; Takeuchi, Hirofumi; Kuno, Yoshio (Department of Pharmaceutical Engineering, Gifu Pharmaceutical University, Gifu, 502-8585, Japan). Pharmaceutical Development and Technology, 5(1), 77-85 (English) 2000. CODEN: PDTEFS. ISSN: 1083-7450. Publisher: Marcel Dekker, Inc..

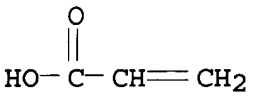
AB The purpose of this work was to develop a novel mucoadhesive DL-lactide/glycolide copolymer (PLGA) **nanosphere** system to improve peptide absorption and prolong the physiol. activity following oral administration. The desired PLGA **nanospheres** with elcatonin were prepared by the emulsion solvent diffusion method to **coat** the surface of the resultant **nanospheres** with a mucoadhesive polymer such as chitosan, **poly(acrylic** acid), and sodium alginate. Their mucoadhesive properties were evaluated by measuring the **nanospheres** adsorbed to a rat everted intestinal sac. The chitosan-**coated nanospheres** showed higher mucoadhesion to the everted intestinal tract in saline than the other polymer-**coated nanospheres.** There was no mucoadhesion site-specificity of the chitosan-**coated nanospheres** between duodenal, jejunal, and ileal sacs. The **payload** of drug in the chitosan-**coated nanospheres** was successfully increased by using the solvent diffusion method in oil. The **pattern** of drug release of the resultant **nanospheres** did not differ markedly from that of uncoated **nanospheres.** The chitosan-**coated nanospheres** with elcatonin were administered intragastrically to fasted Wistar rats. The chitosan-**coated nanosphere** reduced significantly the blood calcium level compared with elcatonin solution and uncoated **nanospheres,** and the reduced calcium level was sustained for a period of 48 h. Even under nonfasting conditions, the mucoadhesion of chitosan-**coated nanospheres** was unaltered and the reduction in blood Ca levels was maintained satisfactorily.

IT **9003-01-4, Poly(acrylic** acid)
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(mucoadhesive lactide/glycolide copolymer **nanospheres coated** with chitosan for improvement of oral delivery of elcatonin)

RN 9003-01-4 HCAPLUS
CN 2-Propenoic acid, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 79-10-7
CMF C3 H4 O2



CC 63-6 (Pharmaceuticals)
ST lactide glycolide copolymer **nanosphere** chitosan elcatonin delivery; oral delivery elcatonin **nanosphere** polyester chitosan
IT Polyesters, biological studies
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(dilactone-based; mucoadhesive lactide/glycolide copolymer **nanospheres coated** with chitosan for improvement of oral delivery of elcatonin)
IT Diffusion
Dissolution rate
Particle size distribution
Zeta potential
(mucoadhesive lactide/glycolide copolymer **nanospheres coated** with chitosan for improvement of oral delivery of elcatonin)
IT Peptides, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(mucoadhesive lactide/glycolide copolymer **nanospheres coated** with chitosan for improvement of oral delivery of elcatonin)
IT Intestine
(mucosa; mucoadhesive lactide/glycolide copolymer **nanospheres coated** with chitosan for improvement of oral delivery of elcatonin)
IT Drug delivery systems
(mucosal; mucoadhesive lactide/glycolide copolymer **nanospheres coated** with chitosan for improvement of oral delivery of elcatonin)
IT Drug delivery systems
(**nanospheres**; mucoadhesive lactide/glycolide copolymer **nanospheres coated** with chitosan for improvement of oral delivery of elcatonin)
IT 7440-70-2, Calcium, biological studies

RL: BOC (Biological occurrence); BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence); PROC (Process)
(mucoadhesive lactide/glycolide copolymer **nanospheres** **coated** with chitosan for improvement of oral delivery of elcatonin)

IT 60731-46-6, Elcatonin
RL: BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(mucoadhesive lactide/glycolide copolymer **nanospheres** **coated** with chitosan for improvement of oral delivery of elcatonin)

IT **9003-01-4**, **Poly**(**acrylic** acid)
9005-38-3, Sodium alginate 9012-76-4, Chitosan
RL: PEP (Physical, engineering or chemical process); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(mucoadhesive lactide/glycolide copolymer **nanospheres** **coated** with chitosan for improvement of oral delivery of elcatonin)

IT 26780-50-7, Glycolide-lactide copolymer
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(mucoadhesive lactide/glycolide copolymer **nanospheres** **coated** with chitosan for improvement of oral delivery of elcatonin)

L212 ANSWER 36 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:62769 Document No. 132:158853 **Nanostructured** **thin films** of **organic**-**organometallic** block copolymers. One-step lithography with poly(ferrocenylsilanes) by reactive ion **etching.**
Lammertink, Rob G. H.; Hempenius, Mark A.; Van Den Enk, Jan E.; Chan, Vanessa Z.-H.; Thomas, Edwin L.; Vancso, G. Julius (MESA, Research Inst., Dep. Materials Sci. Technol. Polymers, Univ. Twente, Enschede, 7500 AE, Neth.). Advanced Materials (Weinheim, Germany), 12(2), 98-103 (English) 2000. CODEN: ADVMEW. ISSN: 0935-9648. Publisher: Wiley-VCH Verlag GmbH.

AB Self-assembled **thin films** of **organic**-**organometallic** diblock copolymers (isoprene-block-ferrocenyldimethylsilane) were prepared and spin-**coated** onto **Si** wafers for nanolithog. applications. Fe and **Si** form a complex oxide in an O plasma during reactive ion **etching.** This creates an **etch**-resistant **barrier**, which accounts for high **etch** selectivity between **organic** and **organometallic** blocks. For specified block-copolymer compns. and **film** **thicknesses**, poly(isoprene-block-ferrocenylsilane) forms a

2D lateral morphol., consisting of hexagonally packed **organometallic** domains in an **organic** matrix.

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)
Section cross-reference(s): 35

ST isoprene ferrocenylsilane block copolymer prepn nanolithog reactive ion **etching**; surface structure isoprene ferrocenylsilane block copolymer nanolithog

IT Polycarbosilanes
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(block; self-assembled **thin films** of diblock copolymers (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

IT Sputtering
Sputtering
(**etching**, reactive; self-assembled **thin films** of diblock copolymers (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

IT Lithography
Polymer morphology
Self-assembly
Surface structure
X-ray photoelectron spectra
(self-assembled **thin films** of diblock copolymers (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

IT **Etching**
Etching
(sputter, reactive; self-assembled **thin films** of diblock copolymers (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

IT 9003-31-0P, Poly(isoprene) 157698-80-1P, Ferrocenyldimethylsilane homopolymer
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(comparison compound; self-assembled **thin films** of diblock copolymers (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

IT 7782-44-7, Oxygen, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(plasma **etch**; self-assembled **thin films** of diblock copolymers (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

IT 12673-39-1, **Iron silicon** oxide
RL: FMU (Formation, unclassified); PEP (Physical, engineering or

chemical process); FORM (Formation, nonpreparative); PROC (Process)
(self-assembled **thin films** of **diblock copolymers** (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

IT 257611-67-9P, Ferrocenyldimethylsilane-isoprene block copolymer 726175-45-7P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(self-assembled **thin films** of diblock copolymers (isoprene-block-ferrocenyldimethylsilane) for nanolithog. applications)

L212 ANSWER 37 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
2000:5031 Document No. 132:144524 The isothermal dendritic growth experiment: evolution of teleoperational control of materials research in microgravity. LaCombe, J. C.; Koss, M. B.; Lupulescu, A. O.; Frei, J. E.; Glicksman, M. E. (Materials Science and Engineering Department, Rensselaer Polytechnic Institute, Troy, NY, 12180-3590, USA). Materials Research Society Symposium Proceedings, 551(Materials in Space--Science, Technology and Exploration), 235-244 (English) 1999. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.

AB Exactly one year ago, the Isothermal Dendritic Growth Experiment (IDGE) completed its 3rd and final orbital space flight aboard the **United** States Microgravity **Payload** (USMP) on STS-87. The IDGE conducted 180 expts. on dendritic growth in 5-9's succinonitrile (SCN), a body centered cubic material used on USMP-2 and USMP-3, and over 100 expts. on 4-9's pivalic acid (**PVA**), an face centered cubic material used on USMP-4. IDGE **film** and telemetry data provide benchmark tip velocity and radii vs. supercooling for critically testing transport theory and the interfacial physics of diffusion-limited dendritic growth. Post-flight application of optical tomog. is providing the 1st tip shape data allowing quant. tests of three-dimensional phase field calcns. Several new discoveries were made during each flight concerning the behavior of dendrites at low driving forces, and the influences of time-dependent **pattern** features and noise. A summary of these scientific highlights will be provided with 18 refs. The IDGE instrument was upgraded on each successive flight, improving its optics and electronics, especially the capability for teleoperational control. Near real-time, full gray-scale video was accommodated on USMP-4, allowing study of nonsteady-state features and time-dependent growth dynamics. A short example of video from space is shown. USMP-4 science was teleoperated by a student cadre for 16 days from a remote site established by NASA at RPI. This operational experience provides valuable insights, which will be

drawn upon for future microgravity expts. to be conducted on the International Space Station.
CC 75-0 (Crystallography and Liquid Crystals)

L212 ANSWER 38 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1999:580846 Document No. 131:291741 Electron backscattering on single-wall carbon **nanotubes** observed by scanning tunneling microscopy. Clauss, W.; Bergeron, D. J.; Freitag, M.; Kane, C. L.; Mele, E. J.; Johnson, A. T. (Department of Physics and Astronomy, University of Pennsylvania, Philadelphia, PA, 19104, USA). Europhysics Letters, 47(5), 601-607 (English) 1999. CODEN: EULEEJ. ISSN: 0295-5075. Publisher: EDP Sciences.
AB Single-wall carbon **nanotubes**, seamless cylindrical mols. formed from a graphene **sheet**, are either conducting or semiconducting, depending on the particular "wrapping **vector** " that defines the waist of the tube. Scanning tunneling microscopy expts. have tested this idea by simultaneously measuring a tube lattice structure and electronic properties. Here we present a series of STM images of single-wall carbon **nanotubes** with a strikingly rich set of superstructures. The observed **patterns** can be understood as due to interference between propagating electron waves that are reflected from defects on the tube walls and ends, or as intrinsic to states propagating on semiconducting tubes. The measured broken symmetries can be used to directly probe electronic backscattering on the tube and provide a key element in the understanding of low-energy electron transport on these structures.
CC 66-3 (Surface Chemistry and Colloids)
Section cross-reference(s): 76
ST STM electron backscattering carbon **nanotube**
IT **Nanotubes**
RL: PRP (Properties)
(carbon; electron backscattering on single-wall carbon **nanotubes** observed by scanning tunneling microscopy)
IT Electron backscattering
Scanning tunneling microscopy
Surface structure
(electron backscattering on single-wall carbon **nanotubes** observed by scanning tunneling microscopy)

L212 ANSWER 39 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1999:42933 Document No. 130:201191 Structural studies of multiwall carbon **nanotubes** by neutron diffraction. Burian, A.; Dore, J. C.; Fischer, H. E.; Sloan, J. (Institute of Physics, University of Silesia, Katowice, 40-007, Pol.). Physical Review B: Condensed Matter and Materials Physics, 59(3), 1665-1668 (English) 1999. CODEN: PRBMDO. ISSN: 0163-1829. Publisher: American Physical Society.

AB The authors report on structural studies of multiwall C **nanotubes** by wide-angle neutron scattering up to a maximum scattering **vector** Qmax = 166 **nm**-1. The derived reduced radial distribution functions of the **nanotubes** are compared to those determined for graphite and turbostratic C, providing evidence that the stacking **pattern** of graphene tubules in multiwall C **nanotubes** is intermediate between those of the other two C forms. The (002) and (004) peaks of the **nanotubes** appear at smaller angles than graphite, yielding the intertubule spacing of 0.341 **nm.** At small length scales (.ltorsim.0.5 **nm**) the **nanotube** structure resembles that of graphite, including graphitelike interlayer correlations for at least a few adjacent **layers.** Beyond this range, a systematic decrease in peak amplitudes and deviation from the graphite structure is observed

CC 65-6 (General Physical Chemistry)

ST structure multiwall carbon **nanotube** neutron diffraction radial distribution function

IT **Nanotubes**
RL: PRP (Properties)
(carbon; structural studies of multiwall carbon **nanotubes** by neutron diffraction)

IT Radial distribution function
(reduced radial distribution functions for graphite and turbostratic carbon and carbon **nanotubes** in relation to stacking **pattern** of graphene in multiwall carbon **nanotubes**)

IT Neutron diffraction
(structural studies of multiwall carbon **nanotubes** by neutron diffraction)

L212 ANSWER 40 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1998:735852 Document No. 129:323948 Ferrocene- and **fullerene** [60]-containing liquid-crystalline materials. Chuard, Thierry; Deschenaux, Robert (Institut Chemie, Universite Neuchatel, Neuchatel, CH-2000, Switz.). Chimia, 52(10), 547-550 (English) 1998. CODEN: CHIMAD. ISSN: 0009-4293. Publisher: Neue Schweizerische Chemische Gesellschaft.

AB A review with 22 refs. showing the versatility of ferrocene and **fullerene** for the design of thermotropic liquid-crystalline materials: (i) the electrochem. properties of the ferrocene-ferrocenium system were exploited to design redox-active metallomesogens; (ii) ferrocene-containing side-chain liquid-crystalline polysiloxane and polymethacrylates were synthesized by grafting a mesomorphic **vinyl-ferrocene** monomer onto com. available polysiloxane and by free-radical polymerization of mesomorphic methacrylate-ferrocene monomers, resp.; (iii) a 1st-generation ferrocene-containing liquid-crystalline dendrimer was synthesized; and (iv)

liquid-crystalline **fullerene** (10) and mixed **fullerene** -ferrocene (11) derivs. were obtained by functionalizing the C60 core with a twin cholesterol moiety.
CC 75-0 (Crystallography and Liquid Crystals)
ST review liq crystal ferrocene **fullerene**
IT Liquid crystals
(preparation and properties of ferrocene- and **fullerene** -containing liquid crystals)
IT **Fullerenes**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and properties of **fullerene**-containing liquid crystals)
IT Liquid crystals
(transitions; preparation and properties of ferrocene- and **fullerene**-containing liquid crystals)

L212 ANSWER 41 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1998:257231 Document No. 129:58687 Polymeric controlled delivery of genes. Leong, Kam W. (Department of Biomedical Engineering, Johns Hopkins University, Baltimore, MD, 21205, USA). International Conference on Biorelated Polymers Controlled Release Drugs and Reactive Polymers, Xi'an, Peop. Rep. China, May 8-11, 1997, 190-191. Nankai University, Institute of Polymer Chemistry: Tianjin, Peop. Rep. China. (English) 1997. CODEN: 65XOAU.
AB This study reports a **nanosphere** delivery vehicle synthesized by complex coacervation of DNA with either gelatin or chitosan. This gene-delivery system has several attractive features. Ligands can be conjugated to the **nanosphere** to stimulate receptor-mediated endocytosis. Lysosomolytic agents can be incorporated to reduce degradation of the DNA in the endosomal and lysosomal compartments. Other bioactive agents or multiple plasmids can be co-encapsulated. Bioavailability of the DNA can be improved because of protection from serum nuclease degradation by the matrix. The **nanosphere** is stable in plasma electrolytes and can be lyophilized for storage without loss of bioactivity.
CC 63-5 (Pharmaceuticals)
Section cross-reference(s): 3
IT Drug delivery systems
(**nanospheres**; polymer-controlled delivery of genes)
IT Gene therapy
Genetic **vectors**
Transformation, genetic
(**polymer**-controlled delivery of genes)

L212 ANSWER 42 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1997:309340 Document No. 127:58244 Effect of residual accelerations during microgravity directional solidification of mercury cadmium

telluride on the USMP-2 mission. Gillies, Donald C.; Lehoczky, Sandor L.; Szofran, F. R.; Watring, Dale A.; Alexander, Helga A.; Jerman, Gregory A. (Space Sciences Laboratory, NASA Marshall Space Flight Center, ES75, Huntsville, Alabama 35812, USA). Journal of Crystal Growth, 174(1-4), 101-107 (English) 1997. CODEN: JCRGAE. ISSN: 0022-0248. Publisher: Elsevier.

AB Directional solidification of Hg Cd telluride (MCT) requires that the **temperature** gradient to growth rate ratio be high to avoid constitutional supercooling. With the optimum gradient condition for solidifying MCT in NASA's advanced automated directional solidification furnace (AADSF), it is necessary to use translation rates ≥0.2 **.mu.m**/s. The result is that any fluid flow with a velocity comparable to or higher than this will dominate the solidification characteristics, particularly the compositional distribution in an alloy such as this which has a large solidus-liquidus separation In an effort to reduce fluid flow velocities a space experiment was performed. On the 2nd United States Microgravity **Payload** Mission (USMP-2), the AADSF made its maiden flight and successfully completed growth of a MCT boule 16cm long. The furnace was located .apprx.3m away from the center of gravity of the space shuttle, and this combined with the drag component of residual acceleration present during flight, resulted in quasisteady residual accelerations of the order of 1μg0 where g0 is the earth's natural gravity. Of more importance is that different orbiter attitudes during the mission produced significant differences in the resultant residual acceleration **vector**, in both magnitude and direction and that these differences caused large compositional variations both across the radii of the boule and along the surfaces of the boule. Comparison will be made with examples grown on the ground and in magnetic fields.

CC 75-1 (Crystallography and Liquid Crystals)

IT Casting of **metals**
(directional solidification; effect of residual accelerations during microgravity directional solidification of mercury cadmium telluride on USMP-2 mission)

L212 ANSWER 43 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

1997:108374 Document No. 126:216517 Influence of sterilization processes on poly(ε-caprolactone) **nanospheres.** Masson, V.; Maurin, F.; Fessi, H.; Devissaguet, J. P. (Lab. Chauvin, Montpellier, 34009, Fr.). Biomaterials, 18(4), 327-335 (English) 1997. CODEN: BIMADU. ISSN: 0142-9612. Publisher: Elsevier.

AB **Polymeric vectors** and especially poly(ε-caprolactone) **nanoparticles** have already shown promising results in the optimization of the ophthalmic bioavailability of drugs. Any formulation instilled in the eye must be sterile, and preferentially isotonic. Poly(ε-caprolactone) **nanospheres** were thus formulated with Synperonic PE/F68,

Synperonic PE/F127, or Cremophor RH40. A tonicity agent, a preservative and, in some cases, a viscosifiant were then added. The pH was finally adjusted to pH 4 or buffered to pH 7. Different sterilization processes were studied to investigate their influence on the physicochem. characteristics of the vectors. Autoclaving did not induce any modification on polymer mol. weight or Synperonic **nanospheres** diameter, but catalyzed some reactions with surfactants and tonicity agents. This method could thus be used if the **nanosphere** excipients are chosen with care. γ-Radiation induced preservative degradation and viscosifiant depolymn. A crosslinking of poly(ε-caprolactone) chains was observed, as reflected by a sharp increase of its mol. weight However, no variation of the mean particle size was detected. Finally, sterile filtration was the only process which ensured the conservation of physicochem. integrity of **nanospheres.** This process was successfully applied on nonviscous vectors with a sufficiently small diameter

CC 63-5 (Pharmaceuticals)

ST sterilization polycaprolactone **nanosphere**; Synperonic polycaprolactone **nanosphere** ophthalmic drug delivery

IT **Heating**
(autoclaving; sterilization effect on poly(ε-caprolactone) **nanospheres** for ophthalmic drug delivery)

IT Polyesters, biological studies
RL: POF (Polymer in formulation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(caprolactone-based; sterilization effect on poly(ε-caprolactone) **nanospheres** for ophthalmic drug delivery)

IT Castor oil
Castor oil
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(hydrogenated, ethoxylated; sterilization effect on poly(ε-caprolactone) **nanospheres** for ophthalmic drug delivery)

IT Drug delivery systems
(**nanospheres**; sterilization effect on poly(ε-caprolactone) **nanospheres** for ophthalmic drug delivery)

IT Drug delivery systems
(ophthalmic; sterilization effect on poly(ε-caprolactone) **nanospheres** for ophthalmic drug delivery)

IT Sterilization and Disinfection
(radiation-induced; sterilization effect on poly(ε-caprolactone) **nanospheres** for ophthalmic drug delivery)

IT Particle size
Sterilization and Disinfection
Surfactants
(sterilization effect on poly(ε-caprolactone)

nanospheres for ophthalmic drug delivery)
IT Buffers
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sterilization effect on poly(ε-caprolactone)
nanospheres for ophthalmic drug delivery)
IT 24980-41-4, Poly(ε-caprolactone) 25248-42-4,
Poly[oxy(1-oxo-1,6-hexanediyl)]
RL: POF (Polymer in formulation); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sterilization effect on poly(ε-caprolactone)
nanospheres for ophthalmic drug delivery)
IT 106392-12-5, Synperonic PE/F68
RL: POF (Polymer in formulation); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sterilization effect on poly(ε-caprolactone)
nanospheres for ophthalmic drug delivery)
IT 50-99-7, D-Glucose, biological studies 54-64-8
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(sterilization effect on poly(ε-caprolactone)
nanospheres for ophthalmic drug delivery)

L212 ANSWER 44 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1996:735327 Document No. 126:82569 Geometrical aspects of the diffraction space of serpentine rolled microstructures: their study by means of electron diffraction and microscopy. Amelinckx, S.; Devouard, B.; Baronnet, A. (EMAT-Laboratory, University of Antwerp, Antwerpen, B-2020, Belg.). Acta Crystallographica, Section A: Foundations of Crystallography, A52(6), 850-878 (English) 1996. CODEN: ACACEQ. ISSN: 0108-7673. Publisher: Munksgaard.
AB The geometry of the reciprocal space of cylindrically and conically rolled microstructures is described. The simpler cylindrical case is 1st discussed, followed by the conical case; in both cases, the observations and then the theory are described. The theory is compared with observations on chrysotiles, the structural and microstructural features of which are briefly recalled. The reciprocal space of an infinite 3-dimensional crystal consists of a lattice of discrete nodes. If a crystalline **sheet** is curled up into a cylindrical scroll (or into concentric cylinders), the corresponding reciprocal space was obtained by rotating this set of lattice points about a line parallel to the cylinder axis through the origin of reciprocal space. The lattice nodes thereby describe geometrical loci that, in this simple case, are circles in planes perpendicular to the rotation axis. For a general orientation of the rotation axis, each node produces its own circle. This is the case when the fiber has chiral character. For certain sym. orientations of the axis, 'degeneracy' occurs and two (or more) nodes may lead to the same circular locus. This is the case for achiral fibers. The curvature often causes disorder in the stacking

of successive cylindrical **sheets** - this leads to 'coronae' instead of sharp circles - especially in the concentric cylinder case. In the diffraction **pattern**, these produce spots that are streaked in the sense away from the axis. In ideal cylindrical scrolls, the structures in successive **layers**, as viewed along a radial line c, are shifted relative to each other over 2π times the **layer thickness**; this may lead to superperiods along the normal c to the **sheet** planes if this shift is commensurate with the lattice **vectors** in the **sheet** plane, i.e. with its translation symmetry. The superperiod is clearly related to the **sheet thickness**, which may be more than one bilayer. If the 2-dimensional crystalline **sheet** is curled up into a cone, the reciprocal-space loci become curves that are situated on spheres of constant spatial frequency, called spherical spirals instead of the circles in the cylindrical case. Each reciprocal-lattice node describes such a spiral traced out by a node point subject to the coupled rotations about the cone axis and about the local normal to the cone axis and about the local normal to the cone surface. The equations of such spirals are derived and their symmetry properties were studied anal. The spiral's shape is a function of the semi-apex angle of the cone. For an arbitrary cone angle, these curves are not closed; they completely fill a band on the surface of the sphere. For certain discrete cone angles, which turn out to be essentially determined by the condition of good epitaxic fit between successive **sheets** of the cone, the spherical spirals become closed curves. The conditions under which several node points, belonging to the same spatial frequency, trace out the same spherical spiral are discussed: i.e. the conditions for degeneracy are formulated. The point symmetries of the sets of spherical spirals belonging to the same spatial frequency depend on characteristic values of the semi-apex angle. All turns of a conical scroll are in fact formed from a single **sheet.** The structure in any given turn is rotated relative to that in the adjacent turn over a constant angle, only determined by the semi-apex angle. If this rotation angle is commensurate with 2π, superperiods can be formed, visible as reinforcements in streaks that are parallel to the generators of the cone formed by the set of normals to the conical surface. Also, this superperiod depends on the **thickness** of the **sheet** as well as on its rotation symmetry. Diffuse scattering is concentrated on a V-shaped hyperboloid-like surface, the point of the V being situated on a spherical spiral. The intersection of this surface with the Ewald plane leads to V-shaped streaks attached by their apexes to the spots. They are the homologs of the simple streaks in the cylindrical case. Under certain conditions of beam incidence, the intersection is a hyperbole branch. Spot positions were computed for a few characteristic diffraction conditions; they represent

adequately the observed spot **patterns.** A Mercator-like projection method is proposed to represent the spherical spirals in a plane and to construct geometrically the intersections with the Ewald plane for different angles of incidence. Throughout the paper, the analogies and the differences between the diffraction features of cylindrical and conical scrolls are emphasized and illustrated by observations on chrysotile.

CC 75-10 (Crystallography and Liquid Crystals)

IT Electron beams
Electron diffractometry
Electron microscopy
Microstructure
Nanotubes
(geometrical aspects of diffraction space of serpentine rolled microstructures: study by means of electron diffraction and microscopy)

L212 ANSWER 45 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

1995:286703 Document No. 122:181613 Cloning, expression and characterization of thymidylate synthase from Cryptococcus neoformans. Livi, Liane L.; Edman, Ursula; Schneider, Gregory P.; Greene, Patricia J.; Santi, Daniel V. (Department of Pharmaceutical Chemistry, University of California, San Francisco, CA, 94143-0448, USA). Gene, 150(2), 221-6 (English) 1994. CODEN: GENED6. ISSN: 0378-1119. Publisher: Elsevier.

AB The thymidylate synthase (TS)-encoding gene from Cryptococcus neoformans (Cn) has been isolated from cDNA and genomic libraries. The 1127-bp gene contains three introns and a 951-bp open reading frame encoding a 35844-Da protein. The cDNA clones lack 324bp of the 5' coding region of the gene. The complete coding sequence was assembled as an expression cassette in pUC19 using parts of the coding sequence from the cDNA and genomic DNA and completing the sequence using synthetic DNA. Production of active TS from Cn (**CnTS**) was first demonstrated by complementation of a thymine (Thy)-requiring Escherichia coli strain. The expression cassette was subsequently subcloned into the T7 **polymerase vector** pET15-b. In this construct, **CnTS** is produced as approx. 10% of the total soluble protein in E. coli. Homogeneous enzyme was obtained at a 36% yield after consecutive chromatog. on DEAE-cellulose, Q-Sepharose, phenyl-Sepharose and Affi-Gel Blue. Steady-state kinetic anal. showed that the Km values for dUMP and CH2H4·folate were 2.7±0.5μ **M** and 38.2±2.5**.mu.M**, resp., and the kcat was 5.1 s-1. The enzyme was stable upon storage at -80°C in Tris·HCl pH 7.4 and thiol.

CC 7-2 (Enzymes)
Section cross-reference(s): 3

L212 ANSWER 46 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1993:567782 Document No. 119:167782 Graft **polymer vectors** for external pharmaceuticals or cosmetics.. Franco, Andre; Gueyne, Jean; Nicolay, Jean Francois; Seguin, Marie Christine (Exsymol S.A.M., Monaco). Eur. Pat. Appl. EP 556110 A1 19930818, 9 pp. DESIGNATED STATES: R: BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE. (French). CODEN: EPXXDW. APPLICATION: EP 1993-400318 19930209. PRIORITY: FR 1992-1458 19920210.

AB Vectors for topical application to skin and mucosa, e.g. nasal mucosa, comprise a particulate porous and biocompatible polymer grafted with biocompatible mols. A mixture of EtOH, distilled water, 25% ammonia, and tetraethoxysilane were **heated** at 40-50° to evaporate ammonia and part of EtOH and then acidified to pH .apprx. 3.5-6 with Dowex CCR-2 resin. To the mixture was then added (3-glycidoxypropyl)trimethoxysilane and stirred for 2 h at 40-50°. The resin was filtered and the grafted **nanoparticles** were kept in EtOH:water (50:50) mixture Formulation of a collyrium containing the above grafted **nanoparticles** are given.

IC ICM A61K009-51
ICS A61K009-16

CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 38, 62

ST graft **polymer vector** pharmaceutical cosmetic; glycidopropyltrimethoxysilane siloxane vector pharmaceutical cosmetic

L212 ANSWER 47 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1993:220064 Document No. 118:220064 Conduction-band dispersion in heteroepitaxial **fullerene** C60. Themlin, J.-M.; Bouzidi, S.; Coletti, F.; Debever, J.-M.; Gensterblum, G.; Thiry, P. A.; Pireaux, J.-J. (Groupe de Phys. des Etats Condens., URA CNRS 783, Fac. Sci. de Luminy, Case 901, Marseille, 13288/9, Fr.). Applied Surface Science, 65-66(1-4), 76-82 (English) 1993. CODEN: ASUSEE. ISSN: 0169-4332.

AB The heteroepitaxial growth of C60 **thin films** was studied on various **layered** substrates. Because of a good lattice match and a favorable corrugation of its (001) cleaved surface, GeS was chosen as substrate. Under optimized sublimation conditions, **multilayer films** were obtained of C60 fullerite, highly ordered on a large scale, as it is proved, for the first time, by a very sharp LEED **pattern.** In the case of one monolayer, spots characteristic of both C60 and substrate are visible, thereby allowing the geometry of the epitaxy to be specified. The empty electronic states of these C60 **films** were studied by k.dblvert.-resolved inverse photoelectron spectroscopy (KRIPES) and the observed structures show a slight but significant dispersion with respect to the wave **vector**

component parallel to the surface. This effect, which crucially depends on the sample **thickness**, confirms that the empty conduction-band π states are partly delocalized.
CC 65-3 (General Physical Chemistry)
ST conduction band dispersion heteroepitaxial **fullerene** C60; germanium sulfide substrate **fullerene** C60 **film**; structure **fullerene** C60 **film** conduction band; photoelectron spectroscopy **fullerene** C60 **film** band; electronic state **fullerene** C60 **film** delocalization
IT Surface structure
(of heteroepitaxial **fullerene**-60 **films**, conduction-band dispersion in relation to)
IT Energy level, band structure
(conduction, of heteroepitaxial **fullerene**-60 **films**, delocalization of empty states in)
IT 99685-96-8, [5,6]**Fullerene**-C60-Ih
RL: PRP (Properties)
(conduction-band dispersion in heteroepitaxial)
IT 12025-32-0, Germanium sulfide (GeS)
RL: PRP (Properties)
(conduction-band dispersion in heteroepitaxial **fullerene** -60 **film** on)

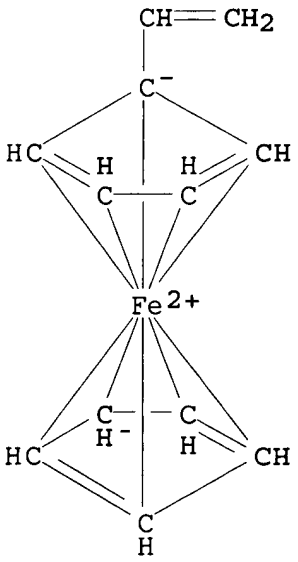
L212 ANSWER 48 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1989:111387 Document No. 110:111387 Comparisons of RNA **patterns** among ten isolates of beet necrotic yellow vein virus collected in Hokkaido, Japan. Tamada, Tetsuo; Abe, Hideo; Saito, Minako; Kiguchi, Tadahiko; Harada, Takeo (Hokkaido Cent. Agric. Exp. Stn., Naganuma, 069-13, Japan). Tensai Kenkyu Kaiho, 29, 39-43 (Japanese) 1987. CODEN: TKKADS. ISSN: 0912-1048.
AB The inocula were prepared using the sugar beet roots which were naturally infected with rhizomania and sampled from various fields in Hokkaido, Japan. They were inoculated into roots of sugar beet seedlings for propagation of beet necrotic yellow vein virus (BNYVV) and its **vector Polymyxa** betae. BNYVV was detected in 13 of 20 samples by ELISA, and ten out of them were infectious to Tetragonia expansa by sap inoculation. RNA **patterns** in agarose gel electrophoresis revealed that all 10 isolate sampled had 4 RNA species with different mol. wts.: 2.3 + 106 (RNA-1), 1.6 + 106 (RNA-2), 0.65 + 106 (RNA-3), and 0.54 + 106 (RNA-4). RNAs smaller than RNA-4 were also detected in some isolates. Thus, ≥4 RNA species are present in sugar beet plants infected with P. betae, although there are slight differences among isolates in size and amount of the small RNAs.
CC 10-1 (Microbial Biochemistry)

L212 ANSWER 49 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1987:145892 Document No. 106:145892 Preparation of polymerized vinylferrocene **film** electrode. Zou, Mingzhu; Yang, Haiquan; Tian, Guangbin; Yu, Tao (Dep. Chem., Jilin Univ., Changchun, Peop. Rep. China). Jilin Daxue Ziran Kexue Xuebao (2), 78-82 (Chinese) 1986. CODEN: CLTTDI. ISSN: 0529-0279.

AB The effects of **etching** electrode with Ar and O plasmas in advance on the preparation of Ar plasma polymerized vinylferrocene **film** electrode were compared. The charging current of glassy C electrode after **etching** with either Ar or with O plasma was smaller than before **etching.** The presence of O groups (radicals) on the electrode surface affected little the performance of Ar plasma polymerized vinylferrocene **film** electrode. The attenuation of the peak current of a **film** electrode was caused by the adsorption of a **layer** of vinylferrocene monomer which indicated that some of the monomers were not polymerized The current of a **film** electrode could be stabilized by removing the adsorbed vinylferrocene monomers from the electrode surface with MeCN for >10 h and ultrasonic vibration.

IT **1271-51-8**, Vinylferrocene
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerization of, argon plasma in, for electrode, argon and oxygen plasma **etching** of carbon electrode in relation to)

RN 1271-51-8 HCAPLUS
CN Ferrocene, ethenyl- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

Section cross-reference(s): 35
ST adsorbed vinylferrocene polyvinylferrocene **film** electrode; polyvinylferrocene **film** electrode argon plasma; oxygen plasma polyvinylferrocene **film** electrode; **etching** plasma carbon polyvinylferrocene electrode; vinylferrocene plasma polymn electrode; carbon electrode pretreatment polyvinylferrocene **film**
IT Sound and Ultrasound, chemical and physical effects
(in removal of vinylferrocene monomer from polyvinylferrocene-**coated** electrode for current stabilization)
IT Electric current
(stabilization of, by removal of adsorbed vinylferrocene monomer from polyvinylferrocene-**coated** glassy carbon electrode)
IT Adsorbed substances
(vinylferrocene monomer on polyvinylferrocene-**coated** carbon electrode)
IT 7440-44-0, Carbon, reactions
RL: PRP (Properties)
(argon and oxygen plasma **etching** of, prior to argon plasma polymerization of vinylferrocene for electrode)
IT 7440-37-1, Argon, reactions 7782-44-7, Oxygen, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(plasma, **etching** and polymerization by, of vinylferrocene on glassy carbon for electrode)
IT **1271-51-8**, Vinylferrocene
RL: RCT (Reactant); RACT (Reactant or reagent)
(polymerization of, argon plasma in, for electrode, argon and oxygen plasma **etching** of carbon electrode in relation to)

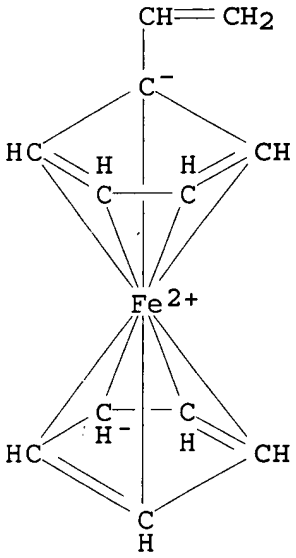
L212 ANSWER 50 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1983:80429 Document No. 98:80429 Studies on chemically modified electrodes. I. Preparation of plasma polymerized vinylferrocene **film** electrode. Dong, Shaojun; Liu, Baifeng (Changchun Inst. Appl. Chem., Acad. Sin., Changchun, Peop. Rep. China). Huaxue Xuebao, 40(11), 1061-5 (Chinese) 1982. CODEN: HHHPA4. ISSN: 0567-7351.
AB The preparation of plasma polymerized vinylferrocene **film** (PPVF) on glassy C electrodes and its cyclic voltammetry were investigated. Plasma polymerization on the electrode was carried out by placing solid monomer (vinylferrocene) in the discharge region together with glassy C, **etched** by Ar plasma beforehand. Properties of the **films** varied with exptl. conditions. By using an inverted boat reactor and placing monomer on both sides of the glassy C electrode, plasma polymerization gives a **thin film** of polyvinylferrocene which is adherent and electroactive. Colored Newton's ring could be observed on polymer **films.** Cyclic voltammetry of PPVF **film** electrode showed the existence of different kinetic situations. On an

electrode with low **coverage**, the redox reaction between ferrocene and ferricinium species proceeds without hindrance of electrochem. charge transport, while on an electrode with high **coverage**, the redox reaction displays diffusion-limited electrochem. charge transport.

IT **1271-51-8**
RL: PRP (Properties)
(plasma-polymerized, glassy carbon electrode modified with)

RN 1271-51-8 HCAPLUS

CN Ferrocene, ethenyl- (9CI) (CA INDEX NAME)



CC 72-2 (Electrochemistry)

IT **1271-51-8**
RL: PRP (Properties)
(plasma-polymerized, glassy carbon electrode modified with)

L212 ANSWER 51 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

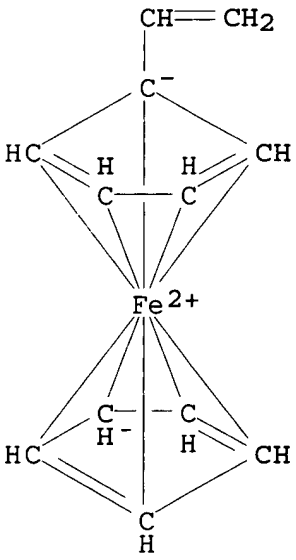
1979:429547 Document No. 91:29547 Chemically modified electrodes. XIV. Attachment of reagents to oxide-free glassy carbon surfaces. Electroactive rf polymer **films** on carbon and platinum electrodes. Nowak, R.; Schultz, F. A.; Umana, M.; Abruna, H.; Murray, Royce W. (William R. Kenan Jr. Lab. Chem., Univ. North Carolina, Chapel Hill, NC, USA). Report, TR-6; Order No. AD-A061427, 20 pp. Avail. NTIS From: Gov. Rep. Announce. Index (U. S.) 1979, 79(6), 90 (English) 1978.

AB Reactive, deoxygenated glassy C surfaces prepared by mech. abrasion under N or Ar plasma **etching** react with selected mols. to

yield surfaces with immobilized mol. surface states. **Vinyl ferrocene** and a Ru pyridine complex are immobilized on glassy C in this way. Introduction of **vinyl ferrocene** directly into an radio-frequency plasma discharge leads to electroactive ferrocene polymer deposition on glassy C and Pt surfaces. Surface waves corresponding to 3 + 10-8 mol/cm2 ferrocene are obtained in this way.

IT **1271-51-8**
RL: PRP (Properties)
(attachment of, to glassy carbon electrodes)

RN 1271-51-8 HCAPLUS
CN Ferrocene, ethenyl- (9CI) (CA INDEX NAME)



CC 72-7 (Electrochemistry)
ST carbon glassy electrode chem modification; **vinyl ferrocene** carbon glassy electrode; ruthenium pyridine carbon glassy electrode; platinum surface ferrocene polymer deposition
IT 110-86-1D, ruthenium complexes **1271-51-8** 7440-18-8D, pyridine complexes
RL: PRP (Properties)
(attachment of, to glassy carbon electrodes)
IT 7440-06-4, uses and miscellaneous
RL: USES (Uses)
(electrodes, **vinyl ferrocene polymer** complex formation on surface of, in radio-frequency plasma)

L212 ANSWER 52 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN

1975:556851 Document No. 83:156851 Electron beam generated **patterns** of metal-containing polymers. Heidenreich, Robert D.; Thompson, Larry Flack (Bell Telephone Laboratories, Inc., USA). U.S. US 3885076 19750520, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1973-358731 19730509.

AB Materials suitable for use as ion-implantation masks or as the 1st **layers** in the direct generation of conductor **patterns** on substrates by electroless deposition are described. The materials are **patterned** deposits of metal-containing **organic** substances, e.g. ferrocenes and its analogs, cross-linked by electron bombardment. The electron beam is directed against either a **film** adsorbed on the substrate from the vapor phase or a polymer **film** deposited on the substrate from a solution (e.g. in solvents of C6H6 or CHCl3) of a polymer with ferrocene substituents. Examples include the use of **vinyl ferrocene**, ferrocene, nickelocene, diphenyl ferrocene and allyl ferrocene. After removal of the uncross-linked portion, if the **pattern** is to be used in electroless deposition, the remaining **pattern** can be treated to drive off the **organic** portion, e.g. by exposure to an O plasma with subsequent reduction of the metal oxides by **heating** in a H atmospheric **Patterned films** containing as few as 1 metal atom for every 500 **C atoms** are effective in the nucleation of electroless deposits. For use in ion implantation, **films** with as few as 1 metal atom for every 50 **C atoms** possess significantly increased ion stopping power, compared with polymers **films** not containing metal atoms.

IC B44D; B05C

INCL 428195000

CC 76-13 (Electric Phenomena)
Section cross-reference(s): 35

ST ion implantation mask ferrocene; electroless deposition nucleation ferrocene; electron beam crosslinked ferrocene; conductive **pattern** ferrocene nucleation; circuit **pattern** ferrocene nucleation; semiconductor ion implantation mask

IT Electric circuits
Electric conductors
(electroless deposition of **patterned**, ferrocene-containing polymer crosslinked by electron beams in nucleation of)

IT Ions in gases
(implantation of, masks for, from electron-beam-crosslinked ferrocene-containing polymer **layers**)

IT Semiconductor devices
(ion-implantation masks for, from ferrocene-containing polymer **layers** crosslinked by electron bombardment)

IT 34801-99-5 51937-67-8 56978-87-1 56978-88-2 56995-53-0
RL: USES (Uses)
(ion-implantation masks and electroless-deposition nucleation

layers from, **patterned** by electron beam-crosslinking)

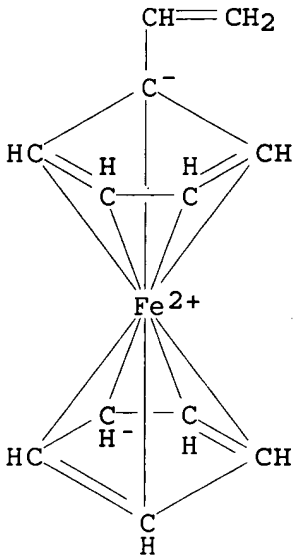
L212 ANSWER 53 OF 53 HCAPLUS COPYRIGHT 2005 ACS on STN
1962:31546 Document No. 56:31546 Original Reference No. 56:5999c-g
Substituent effects in the chronopotentiometric oxidation of ferrocenes. Hoh, George L. K.; McEwen, William E.; Kleinberg, Jacob (Univ. of Kansas, Lawrence). Journal of the American Chemical Society, 83, 3949-53 (Unavailable) 1961. CODEN: JACSAT. ISSN: 0002-7863.

AB A series of ferrocenes was oxidized chronopotentiometrically at a Pt **foil** in LiClO4-acetonitrile. Plots of E1/4 vs. σ*, σm, and σp were made. Ferrocenes with the following substituents were studied: di-Et, iso-Pr, Et, Me, PhCH2, di-PhCH2, H, MeOCH2, PhOCH2, Ac, di-Ac, EtCO, isopropenyl, MeCH(OH), **EtCH**(OH), CH2:CH, PhCH(OH), Bz, di-Bz, MeCH:CH, Pr, PhCHMe, PhCHEt, EtMeCH, PhCH2CH2, and Me3CCHMe. The last 7 were new compds., for which the m.p., n25D, and d28 were: liquid, 1.6310, 1.24; liquid, 1.5846, 1.22; liquid, 1.6270, 1.19; 58.4-59.6°, -, -; liquid, 1.5951, 1.20; 55.0-57.0°, -, -; liquid, 1.5687, -. Propenylferrocene was prepared by **heating** ethylferrocenylcarbinol in a N atmospheric several min. at 150°, extracting with Skellysolve B, and chromatographing on A111 alumina. Before **heating**, the ethylferrocenylcarbinol was deposited on A111 alumina by evaporating the Skellysolve B. n-Propyl- and β-phenylethylferrocenes were prepared by reducing the corresponding ketones with Zn and HCl in HOAc. The products were purified by chromatographing on A111 alumina with Skellysolve B. α-Phenylethyl-, α-phenyl-n-propyl-, sec-butyl-, and methyl-tert-butylcarbinylferrocenes were prepared by condensing an acylferrocene with a Grignard reagent and reducing the tertiary alc. as above. A possible low mol. weight polymer of isopropenylferrocene, m. 210-12° (decomposition), was also isolated chromatog. Only α-phenylpropyl- and methyl-tert-butylcarbinylferrocene were stable over a day or two and the latter was stable several months when sealed in glass. The plots could be represented as follows: E1/4 = 0.0978 Σσ* -0.1374, correlation coefficient 0.977; E1/4 = 0.628 Σσm + 0.337, correlation coefficient 0.957; and E1/4 = 0.431 Σσp + 0.367, correlation coefficient 0.979.

IT **1271-51-8**, **Ferrocene, vinyl-**
(preparation of)

RN 1271-51-8 HCAPLUS

CN Ferrocene, ethenyl- (9CI) (CA INDEX NAME)



CC 33 (Organometallic and Organometalloidal Compounds)

IT **1271-51-8, Ferrocene, vinyl-**
1271-51-8, Cyclopentadiene, vinyl-, cyclopentadienyliron derivative 1272-44-2, Iron, (benzoylcyclopentadienyl)cyclopentadienyl- 1273-89-8, Ferrocene, ethyl- 1273-92-3, Cyclopentadiene, propyl-, iron derivative 1273-92-3, Ferrocene, propyl- 1273-94-5, Ferrocene, 1,1'-diacetyl- 1277-49-2, Ferrocenemethanol, α-methyl- 1277-68-5, Ferrocenemethanol, α-phenyl- 1287-25-8, Ferrocene, phenyl- 1291-47-0, Ferrocene, 1,1'-dimethyl- 1292-30-4, Iron, (cinnamoylcyclopentadienyl)cyclopentadienyl- 1294-04-8, Ferrocenemethanol, α-ethyl- 12091-55-3, Iron, [(p-chlorophenyl)cyclopentadienyl]cyclopentadienyl- 12091-58-6, Iron, cyclopentadienyl[(p-nitrophenyl)cyclopentadienyl]- 12093-10-6, Ferrocenecarboxaldehyde 12094-18-7, Iron, cyclopentadienyl[(p-methoxyphenyl)cyclopentadienyl]- 12094-24-5, Ferrocene, styryl- 12098-13-4, Ferrocene, 1,1'-diphenyl- 12180-80-2, Ferrocene, 1,1'-dibenzoyl- 12189-86-5, Ferrocene, 1,1'-bis(trimethylsilyl)- 12215-68-8, Ferrocene, (trimethylsilyl)- 12261-57-3, Iron, [(p-acetylphenyl)cyclopentadienyl]cyclopentadienyl- 31725-14-1, Ferrocene, isopropenyl- 32994-54-0, Ferrocene, benzyl- 32994-55-1, Iron, cyclopentadienyl(phenethylcyclopentadienyl)- 33269-60-2, Iron, cyclopentadienyl[(α-ethylbenzyl)cyclopentadienyl]- 35127-17-4, Iron, cyclopentadienyl[(α-methylbenzyl)cyclopentadienyl]- 56271-88-6, Iron, cyclopentadienyl(propenylcyclopentadienyl)- 57900-37-5, Iron, bis(octylcyclopentadienyl)- 58482-65-8, Iron, [(p-bromophenyl)cyclopentadienyl]cyclopentadienyl- 73230-99-6,

Ferrocene, 1,1'-dioctyl- 97705-83-4, Iron, (sec-butylcyclopentadienyl)cyclopentadienyl- 97737-48-9, Ferrocene, (1,2,2-trimethylpropyl)- 106632-40-0, Ferrocene, 1,1'-didecyl- 824960-72-7, Acetophenone, 4'-(cyclopentadienyl)-
(preparation of)

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